AIR CONDITIONING HEATING & REFRIGERATION NEWS
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RESIDENTIAL — COMMERCIAL — INDUSTRIAL
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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
The Popes of Australia
Those Rugged Australians
Fasten Your Belts, Men
Add Newspaper Boners
Out of Our Mailbag

Stories of the Week

"You offered to assign a lawyer to me free of charge," a constituent wrote New York Judge Irwin Davidson.

"Can you also get a witness for me?"

Usually nothing starts people off on the New Year with more good resolutions than a big New Year's Eve party.—VESTA *M.* KELLY.

"Your Honor," a defendant bristled to Judge Julius Isaacs of New York, "I don't need a lawyer to represent me. The Lord will be my advocate."

"Nevertheless," said Judge Isaacs drily, "I believe you also need a local man."

Drunk watched a steeplejack work on the face of a City Hall tower clock.

"Man!" the drunk sympathized, "he's really nearsighted."

The Popes of Australia

Recently the outlook in U. S. industry has become much brighter, according to one top Australian executive who has been visiting this country recently.

This view is expressed by Mr. S. Barton Pope, Chairman of Directors of Pope Products, Ltd., Australia.

Accompanied by a seven-man team of top executives of his company, Mr. Pope has entoured the U. S. to consolidate manufacturing agreements made last year with Borg-Warner and to make contact with other U. S. companies.

His group is believed to be the largest team of Australian manufacturers to visit the U. S. in recent years.

Mr. Pope avers that there now is much more optimism in U. S. industry than he had seen a year ago.

"There is a growing note of confidence and belief that U. S. manufacturing is on the upclimb," Mr. Pope states.

"U. S. executives do not seem to expect a boom, but rather a steady improvement in business conditions, leading to a more solidly based prosperity.

"One factor in the industrial recovery could be that retailers'

(Concluded on Page 16, Col. 1)

'59 Looks Fine; '58 Had Its Bright Spots

1958 Not Good But Respectable For Cooling

DETROIT—While 1958 was not a "good" year for the air conditioning industry, in terms of projected hopes and expectations, it nevertheless rang up some fairly respectable sales figures, particularly in view of the general business recession, and the unfavorable weather conditions encountered in the northern metropolitan centers.

In room air conditioners, both sales and production figures for the "air conditioning year" (Sept. 1, 1957 to Aug. 31, 1958) showed decreases. The caution that manufacturers showed in producing room units resulted in some reduction in the record inventory that showed up on Aug. 31, 1957, as of the end of the season this year.

Following are the pertinent over-all figures on the room air conditioner industry:

Inventory, Aug. 31, 1957..... 800,000
Production, year to Sept. 1, 1958.....1,000,000
Retail sales to Sept. 1, 1958.....1,150,000
Inventory, Aug. 31, 1958..... 650,000

There have been indications that more of this factory and

(Concluded on Page 4, Col. 5)

Grand Rapids Combines Heating, Cooling Boards

GRAND RAPIDS, Mich.—Proposed amendment combining the local refrigeration and heating boards into a single governing body was adopted by the city commission here Dec. 23.

The change went into effect immediately, but the appointment of members of the board is still in process.

As detailed in the Dec. 1 issue of the NEWS, this change was sponsored by the Grand Rapids Heating & Air Condi-

(Concluded on Page 4, Col. 3)

Insolvency Charge Denied by Sutton

WICHITA, Kan.—In a statement issued after five firms filed an involuntary bankruptcy petition against O. A. Sutton Corp., H. F. Hildreath, Sutton president, denied that the corporation is insolvent.

Filed in Federal Court, the petition accuses Sutton of committing acts of bankruptcy by fraudulently transferring property, while insolvent, on three occasions.

According to the petition, transfers were accomplished by execution and delivery of all properties owned by the firm,

(Concluded on Page 27, Col. 5)

More Encouraging, ARI Says of 1959, Early 'Sixties'

WASHINGTON, D. C.—While many segments of U. S. business suffered serious setbacks during 1958 as a result of the "recession" and other causes, the air conditioning and refrigeration industry was, largely, an exception to the trend, showing appreciable gains in some departments, holding its own in most others, and recording relatively slight declines from 1957 in one or two types of products, according to D. V. Petrone, president of the Air-Conditioning & Refrigeration Institute, association of the manufacturers of industry products.

The outlook for 1959 and the early "sixties" is even more encouraging to the industry, which each year is entrenching itself more firmly as the producer of equipment desirable, and in many cases essential, to the nation's health, produc-

(Concluded on Page 28, Col. 1)

Colorado Oil & Gas Buys Jas. P. Marsh

SKOKIE, Ill.—The ownership of Jas. P. Marsh Corp. and subsidiaries has been acquired by Colorado Oil & Gas Corp. of Denver, it was announced here.

Colorado Oil & Gas is primarily engaged in the drilling, production, refining, and marketing of petroleum products. The corporation, which has operations in the Gulf Coast, mid-continent, Rocky Mountain, Canadian, and Alaskan areas, is embarking upon a program of diversification, it was explained.

Marsh will continue to operate as in the past, retaining its identity, personnel, sales representation, and policies, according to the announcement. However, changes in the board of directors and executive officers, resulting from the retirement of C. H. Olmsted, chairman of the

(Concluded on Page 27, Col. 5)

Review and Forecast

This issue could be called the "Review and Forecast" issue, since it reviews the sales progress recorded in various segments of the air conditioning, heating, and refrigeration fields during 1958, and also offers a forecast on 1959 over-all sales possibilities.

Scattered throughout the issue are forecasts for 1959 made by association officials, or executives of individual companies. Another feature in this issue is the year-end index of major stories and articles which were published in the News during 1958.

Industry Expects Turning Point; Observes Some Real Good Signs

AFTER TWO DISAPPOINTING YEARS for most of the segments of the air conditioning, heating, and refrigeration industry, 1959 is looked to hopefully as the "turning point" for an improved sales picture.

For the most part, those who have been willing to go on the record with any kind of forecast at all have tended to be on the conservative side, because the expected goals of the last two years were not reached. At the same time, there is a strong undercurrent of feeling that 1959 will "just have to be better," and there are some indications that the improvement could be of major proportions.

So the over-all forecast is in this order—sales to be better in all categories, with hoped-for increases over 1958 as high as 50% in some areas.

To summarize, here is what the forecasts for 1959 look like (with detailed predictions on the inside pages):

COOLING VOLUME Might Hit $3.5 Billion

After two bad years, with the air conditioning industry's total dollar volume possibly dipping under the $3 billion mark in 1958, there seems a good chance that the over-all volume could bounce up to $3.5 billion in 1959, around a 20% increase over-all.

RESIDENTIAL: The conservative estimate is a 25% gain over 1958, the optimistic puts it as 50%. The latter would mean that on the basis of an estimated 130,000—140,000 units sold in '58, the total next year could go close to the 200,000 mark.

ROOM AIR CONDITIONERS: The weather will again be a factor, but with improved general business conditions, it is hoped that the 1,500,000 mark in retail sales can be reached. Production may not climb much past the 1958 figure, because of the cautiousness of manufacturers, unless the tax angle is a factor.

COMMERCIAL AIR CONDITIONING—100,000 Units?

COMMERCIAL: High saturation in "cream" of this market makes selling tougher, but boom in commercial construction, better general business conditions, and adaptability of split systems may help to push sales back over the 100,000 mark again.

LARGE SYSTEMS: While exact figures in this category are difficult to come by, the continuing trend seems to be up, and this would seem to be particularly so if non-residential construction continues to boom. A break-through in the industrial market could touch off a real boom.

AUTOMOTIVE: Automobile manufacturers say that percentage of autos being air conditioned continues to grow. With improved sales of autos this year, number air conditioned might zoom past the 500,000 mark.

HEATING: Estimates by government and industry sources say warm air furnace shipments in 1959 may total 1,225,000 units, about a 5% increase over 1958. The hydronics (wet heat) manufacturers expect to increase their sales because of improved products and better, more coordinated promotional efforts.

COMMERCIAL REFRIGERATION—Might Rise 10%

ONE OF THE BEST YEARS in the history of the commercial refrigeration industry is in sight if the trend which continues last summer continues. The spurt in the last half is pulling the industry up to one of its better years, and with industry executives predicting a boost in demand by as much as 10% in 1959, the picture is bright.

THIS WOULD MEAN that between 150,000 and

(Concluded on Page 4, Column 1)

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for Refrigeration &
Air Conditioning Equipment

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WORKS: READING, PA.

Metals & Controls, Texas Instruments Announce Details of Merger Plan

DALLAS — The boards of directors of Texas Instruments, Inc. here and Metals & Controls Corp. of Attleboro, Mass., announced that they had agreed in principle, subject to solution of legal and other matters, to recommend to their respective stockholders a merger of Metals & Controls into Texas Instruments.

The merger would be accomplished through an exchange of stock, whereby the stockholders of Metals & Controls would receive either (a) ¾ of one share of Texas Instruments common stock for each share of Metals & Controls common stock, or (b) a combination of Texas Instruments stock consisting of ⅝0 of a share of Texas Instruments 4% convertible preferred stock ($25 par value) and ⅓0 of a share of Texas Instruments common stock for each share of Metals & Controls common stock.

The Texas Instruments preferred stock will be a new series and will be issued only in connection with the exchange for Metals & Controls shares.

It is planned to submit the proposed merger plan to the stockholders of both companies early in 1959.

Metals & Controls has outstanding 922,467 common shares, and Texas Instruments has outstanding 3,256,988 common shares.

Sales of Texas Instruments for 1958 are estimated at over $90,000,000. Sales of Metals & Controls for 1958 are estimated at $45,000,000.

One of Metals & Controls' activities is the manufacture of thermostatic controls for industrial and motor control uses under the name of Spencer Thermostat, identified by the trade name "Klixon."

C. J. Thomsen, director and vice president of Texas Instruments, was elected president of Metals & Controls. Thomsen replaces G. L. Williams, formerly acting president of Metals & Controls who will retain his position as director and treasurer of Metals & Controls and as president and treasurer of M & C Nuclear, Inc., a wholly-owned subsidiary of Metals & Controls.

In the interim, prior to approval of the merger by stockholders of both companies, Thomsen will resign his positions with and be on leave of absence from Texas Instruments.

SAVED!

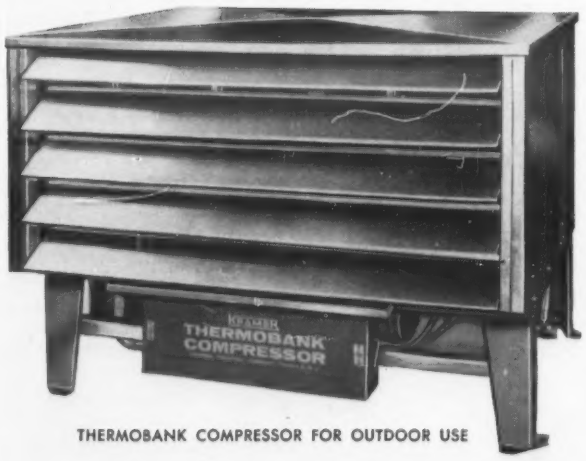
by KRAMER

THERMOBANK
COMPRESSOR

your *money!* Kramer's THERMOBANK COMPRESSOR costs less—even less than most so-called "cheap" defrost systems. Many extra components are installed in this package unit, including compressor starter switch, evaporator motor switch, strainer, drier, high and low pressure switches, control box, magnetic starters, sight glass, purge valve, suction vibration eliminator and all service valves.

your *time!* Time saved is money saved. Factory assembled and run-in, THERMOBANK COMPRESSOR is ready to operate. It requires simplest connections between evaporator and compressor package, saving costly installation time. Start-up, control adjustments, and servicing are much easier. Expensive call-backs are eliminated.

your *space!* Uniquely designed, THERMOBANK COMPRESSOR is the only system where the high-side can be installed outdoors; it works in any location in the United States at any time of the year.



THERMOBANK COMPRESSOR FOR OUTDOOR USE

WRITE FOR BULLETIN TC-406

KRAMER TRENTON CO. Trenton 5, N. J.

45 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Former Exhibitors May Now Reserve ARI Show Space

WASHINGTON, D. C.—Exhibitors who displayed at previous expositions of the Air-Conditioning & Refrigeration Institute may now submit applications for space in the 11th Exposition slated for Nov. 2-5, 1959, at Convention Hall in Atlantic City, N. J.

ARI's exposition committee will meet here Jan. 9 to allocate space to ARI members whose applications were received prior to Jan. 1.

Sometime after March 1, remaining space will be offered to the industry at large, George E. Mills, show director, declared.

He said that as of Dec. 15, 50 ARI members had signed up for space in the next exposition. He emphasized that with only 88,000 sq. ft. of space available—less than for the 10th Exposition in Chicago—all space may be sold out weeks before the show starts Nov. 2.

Mills expects that ARI members will take about 60% of the available space.

Exposition committee chairman Robert H. Luscombe announced that the Chalfonte-Haddon Hall has been chosen again as headquarters hotel.

Planning for your future?

Profit with Chrysler Airtemp

Stabilized distribution through independent wholesale distributors and improved profits are primary objectives of Chrysler Airtemp

J. B. Ogden, Vice President—Sales, explains new program

"Our goal is to make the complete Chrysler line more profitable than ever for our distributors . . . and to use them as our single channel of distribution. This is a long-range program that will lead inevitably to increased consumer sales through better market penetration for our air conditioning and heating equipment. And, it's already under way.

Closing Factory Branches

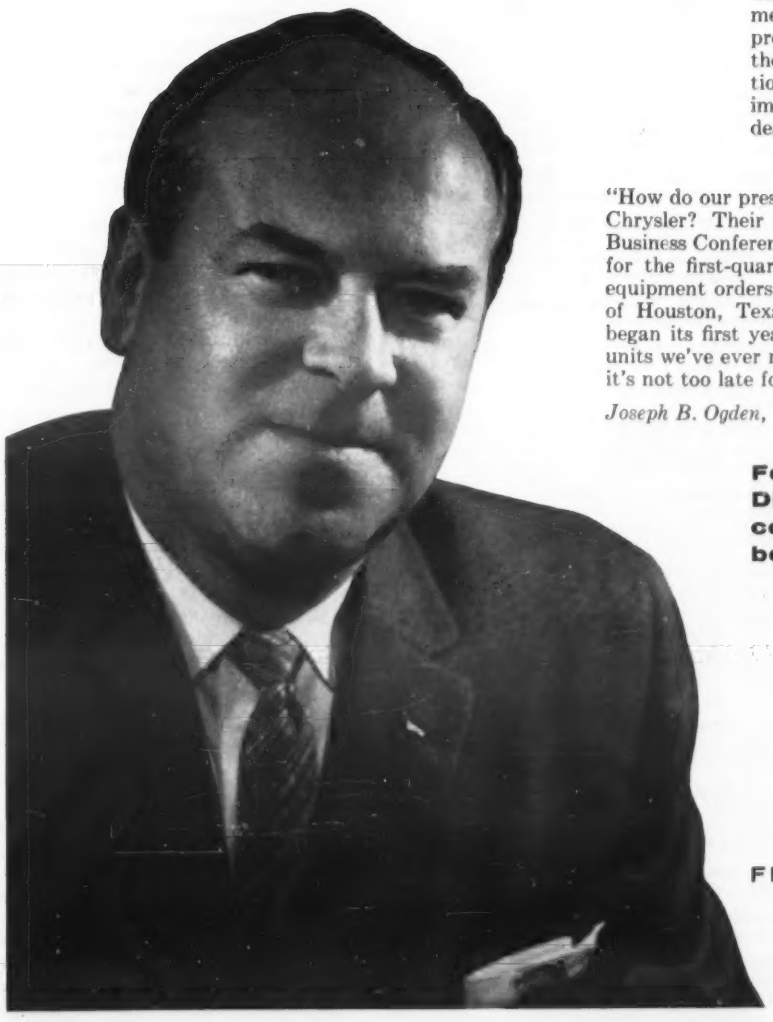
"We took the first step this month when we closed our factory branch in Dayton, Ohio, and signed up General Air Supply Co., Inc. to handle 13 Ohio and Indiana counties. This is the pattern we expect to follow throughout the country because we firmly believe that aggressive, profit-minded distributors and their dealers are the only sensible solution to the confused and chaotic distribution problem in the air conditioning and heating industry.

"Progress and growth of your business, we believe, depends on your working with a company that has planned well for the future. And that is precisely what Chrysler is doing.

Expanded Organization for Increased Volume

"The Chrysler distributor-dealer organization is being strengthened to provide adequate, stabilized distribution for the increasing volume of business we confidently expect to do in the years to come. Why are we so confident? For five good reasons:

"*First*, we're expanding and improving our product line to increase sales and profit opportunities. *Second*, we're moving into an aggressive advertising and merchandising program . . . with national advertising closely co-ordinated with local retail merchandising, and supplemented by local market promotions. *Third*, Chrysler is providing the most comprehensive sales training program in the industry. *Fourth*, there exists a public awareness of the well-deserved Chrysler Corporation reputation for product quality and engineering excellence. *Fifth*—and perhaps most important—there's a new spirit of excitement and enthusiasm in our distributor-dealer organization . . . and it's already got us off to a record-breaking start for 1959.



"How do our present distributors and dealers feel about their future with Chrysler? Their actions speak for themselves. During our National Business Conference in Dayton, Chrysler distributors placed record orders for the first-quarter 1959. The total represented a 50% increase over equipment orders for the corresponding quarter in 1958. Stahl & Myers, of Houston, Texas—the world's largest room air conditioner dealer—began its first year with Chrysler by placing the biggest order for room units we've ever received. It's been the greatest start in our history. And it's not too late for you to get in on the ground floor."

Joseph B. Ogden, Vice President—Sales, Airtemp Division, Chrysler Corporation

For a profitable future, think of Chrysler. Contact Airtemp Division, Chrysler Corporation, Dayton 1, Ohio, for the complete franchise proposition. There will never be a better time to do it than today!

CHRYSLER
AIRTEMP

FIRST WITH THE FINEST IN AIR CONDITIONING

Outlook for the Year Ahead

(Concluded from Page 1, Column 5)

175,000 commercial refrigerators (display cases, reach-ins, and walk-ins) would be sold. As for other types of commercial equipment, ice cream cabinets continue somewhat on a decline, but water coolers are said to be improving, milk coolers are going good, refrigerated vending machines are finding more applications (especially in in-plant feeding), and ice makers have a fairly steady market.

MAJOR APPLIANCES Comeback

THIS WAS A COMEBACK year in major appliances. Refrigerators didn't fare as well as freezers, but the improvements in both were heartening. Next year should be even better, say the forecasters, with some predicting an improvement in freezer sales of 30% or more, which would throw them well over the million mark.

CONSTRUCTION—Looks Like Things Will Pick Up

HOME BUILDING STARTS in 1959 should be in the area of 1,200,000 units, most observers in the home building field agree. This would be a slight increase from the 1,150,000 starts estimated for 1958, but is considered a generally satisfactory mark.

NON-RESIDENTIAL CONSTRUCTION might head toward one of the best years on record, according to a joint forecast made by the U.S. Departments of Labor and Commerce. The forecast predicts an increase of 6 to 8% over 1958, which developed into a good year following a slow start.

Grand Rapids Combined Board--

(Concluded from Page 1, Col. 2)

tioning Association, which is essentially composed of warm air and sheet metal contractors.

The move was the result of alleged discrimination by the city's refrigeration board in granting licenses to heating contractors desiring to install residential and small commercial air conditioning systems.

Nine members will comprise the new combined board as follows: head of the city's Department of Inspection Services, three heating contractors, three refrigeration and air conditioning contractors (only one of which is exclusively engaged in refrigeration), and two engineers experienced in testing and examining persons but completely outside the heating and refrigeration industries.

The board will be responsible for rules and regulations governing heating, air conditioning, and refrigeration systems, including the examination of applicants for licenses.

Not for Sale

Westinghouse Shows Thermoelectric Items At Merchandise Mart

CHICAGO — First full-size, practical thermoelectric domestic refrigerator will be demonstrated by Westinghouse Electric Corp. at the Merchandise Mart here during the Home Furnishings Show beginning Jan. 5.

Along with the prototype of a thermoelectric refrigerator, Westinghouse will display prototypes of a small, thermoelectric dehumidifier, a furniture styled refrigerator made up of sections and cooled from a central source, and an ultrasonic dishwasher.

Westinghouse pointed out that none of these products are yet ready to market.

The thermoelectric refrigerator draws its cold directly from electricity with no mechanical or motor activity. *(Details will be published in a later issue.)*

Cooling Sales-

(Concluded from Page 1, Col. 2)

distributor inventory has moved into the retailers' hands during the fall months than in former years, in part because of the pending imposition of the Federal income tax on all units of 1 hp. and above.

Installation of central residential air conditioning systems during the entire year of 1958 ranged someplace between 130,000 and 140,000 units, it is estimated by AIR CONDITIONING, HEATING & REFRIGERATION NEWS.

There are some in the industry who may think this figure to be somewhat on the high side, but it is not out of line with the unofficial estimates of the associations who collect figures on various segments of the industry. The NEWS estimate takes into account such extra factors as "built-up" systems, and the application of 1½-hp. and 2-hp. systems to central residential systems.

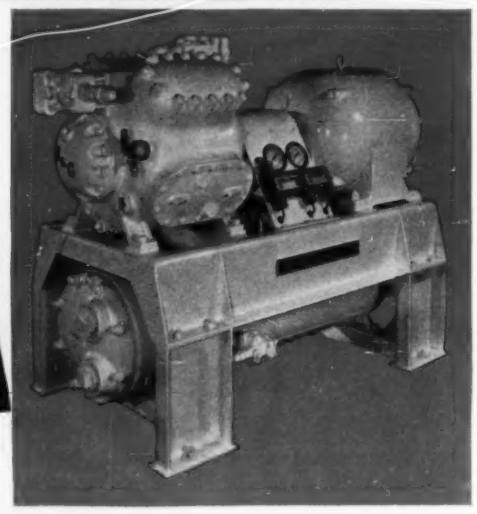
On the basis of the over-all estimate on sales of unitary air conditioners for 1958 released by the Air-Conditioning & Refrigeration Institute, the total for package commercial units (including the split system type) would seem likely to be around 90,000 units.

However, it might surpass this, as it is known that shipments of unitary equipment in the last half of the year have been running well ahead of shipments in comparable periods for the past couple of years.

Another factor in the commercial package sales picture is the increasing use of split-systems for commercial applications.

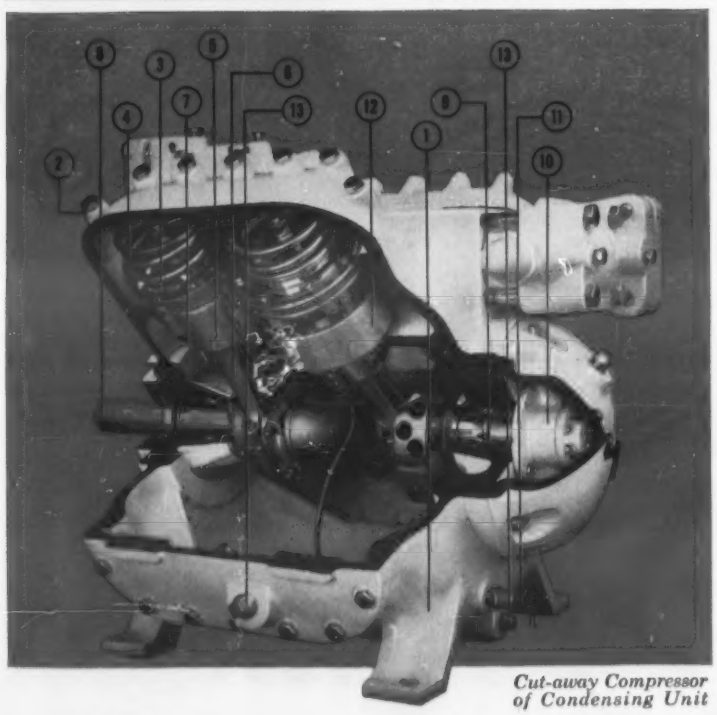
The ARI in the past couple of years has been asking its reporting members for whatever information they could supply on the ultimate application of the unitary equipment which they shipped. For split systems, the number that went into commercial applications doubled in 1957 over 1956 (see tabulation of these figures published on page 27). Another increase of this nature is expected when 1958 tabulations are completed.

A complete "package" with ALL MAJOR COMPONENTS BUILT AND GUARANTEED BY BELL & GOSSETT COMPANY



B & G CONDENSING UNIT

An achievement in compact efficiency, featuring interchangeable vital parts. 7½ through 150 tons.



Cut-away Compressor of Condensing Unit

The B&G Condensing Unit offers an impressive list of features, *many of them exclusive*, which make it completely outstanding. It is amazingly compact as well as efficient—the shortest unit available on the market today.

The cut-away illustration shows the highlights of compressor construction—

1. **Compressor housing.** Monobloc design using pressure-tight iron which meets Underwriters' requirements for use with R-12 or R-22.
2. **Cylinder heads and cover plates.** Cast of same material as compressor housing.
3. **Suction and discharge valves.** Highest grade Swedish steel—non-flexing, full floating. Low lift with positive gas-cushioned backstop for quiet operation.
4. **Safety springs.** Prevent damage from occasional liquid slugs.
5. **Pistons.** Automotive type, of light weight alloy. Full floating wrist pin, two compression rings and one oil control ring.
6. **Connecting rods.** Light weight, heat-treated alloy—rifle drilled to assure positive lubrication of wrist pin.
7. **Cylinder sleeves.** Removable cylinder liners of special alloy iron are machined and housed to a maximum tolerance of 0.0005 inches.
8. **Crankshaft.** High tensile, ductile iron. Greater strength and noise dampening qualities make it superior to conventional forged steel shafts. Running surfaces induction hardened and polished—shafts are statically and dynamically balanced—rifle drilled for forced feed lubrication.
9. **Main bearings.** Heavy wall bronze, diamond bored after assembly for close tolerance.
10. **Forced feed lubrication.** Positive-displacement, self-reversing oil pump supplies excessive oil to main bearings, connecting rods and wrist pins.
11. **Crank case heater.** Standard equipment on all compressors.
12. **Capacity Control.** Can be equipped with multi-step capacity control system.
13. **Standard equipment.** Gas and oil equalization ports, magnetic plugs and oil sight glass.

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Gray & Dudley, Chattanooga Royal Merge

CHATTANOOGA, Tenn. — L. B. Stevens, chairman of Gray & Dudley Co. of Nashville, Tenn., and Ross I. Evans of Nashville, president of Chattanooga Royal Co. here, announced the merger of operation of the two companies.

Stevens will continue as chairman of the merged operations and Evans as president. L. O. Morin, Jr., of Chattanooga will serve as executive vice president of the Martha Washington Div. in Nashville. George M. Childress is vice president and general manager and Robert C. Gundaker is vice president in charge of sales of the Chattanooga Royal Div.

The Chattanooga Royal Co. Div. will continue in the manufacture and distribution of its products under the same management and with the same personnel.

The Martha Washington Div. will continue in Nashville with the manufacture and distribution of its products under its present management, and there will be no change in personnel.

Chattanooga Royal manufactures gas heating and central air conditioning equipment under the trade names "Royal" and "Chattanooga," and portable barbecue grills under the trade names "Royal Chef" and "Patio Prince."

The Martha Washington Div. of Gray & Dudley manufactures and distributes built-in gas and electric stoves, surface units, range hoods, and water heaters, according to the announcement. It has also offered and distributed a line of dishwashers, built-in refrigerators, and free-standing gas and electric stoves.

NAPC Memo

Lamb Sees Little Hope for Building Trades Unions To Get In-Plant Work

WASHINGTON, D. C. — The National Association of Plumbing Contractors released a review of the industrial "contracting-out" problem affecting contractors and craft unions in the construction industry.

The memorandum was prepared by George P. Lamb of Washington, D. C., general counsel of NAPC, specially for the plumbing contractors. Because of its general interest and applicability, however, the association is circulating it widely as a service to the construction industry.

Lamb's opinion "explores the legality of restrictive clauses written into industry labor contracts by 'in-plant' unions which severely limit management's right to sub-contract plant maintenance, repair, and installation work," it was pointed out.

"It holds out little hope of any effective counter-measures by contractors or building trades unions to recover such work denied them by industrial union contracts. Neither the anti-trust statutes nor the Taft-Hartley Act, Lamb says, appear likely to provide relief from the growing practice."

The opinion cites many sample clauses from industrial collective bargaining agreements.

Welding Chart Offered

WHITE PLAINS, N. Y.—A new welding shop wall chart of 89 specialty alloys and fluxes is now available from All-State Welding Alloys Co., Inc. here.

Move Offices

Fort Worth Group Changes Name To Widen Coverage

FORT WORTH, Texas—Name of the Fort Worth Air Conditioning Association, Inc. has been changed to "Tarrant County Air Conditioning Association, Inc."

New name of the group is thought to be more accurate in that members of the association have been installing equipment throughout the county, according to Grant H. Johnson, Jr., president.

This change will also permit contractors in the county to join the group, which heretofore has limited membership to firms established in Fort Worth proper, Johnson adds.

Association offices have also been moved to 2713 Creston Ave. from quarters formerly occupied in the Neil P. Anderson Bldg. Col. Edwin D. McCoy continues as executive secretary of the new group.

Change in name does not imply any change in functions and purposes of the association, Johnson emphasizes.

Currently an association committee is drawing up a new list of minimum standards for heating and air conditioning installations, which, following adoption by the membership, will be promoted among the public and builders.

"BUY FROM FABRIKANT"

Lowest prices for imported copper, brass, aluminum sheets, coils, manufactured strictly to ASTM and Federal specs. Large stocks all gauges and sizes on hand New York warehouse.

Orders also solicited for forward shipments.

Stocklist and prices upon request.

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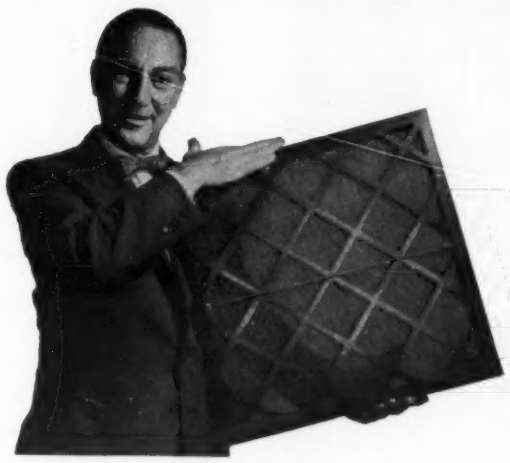
"And now, a word from my sponsor"

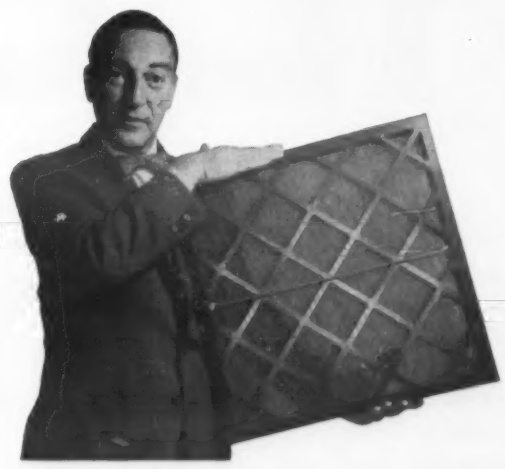
says Garry Moore, star of the Garry Moore Television Show, seen Tuesdays at 10 p.m. E.S.T., CBS-TV Network



"I'm Garry Moore, and this is PPG's Glasfloss Fiber Glass Safety-Grille Filter. I want to tell all you gentlemen . . . and any ladies who happen to be listening . . . a couple of very important reasons why the Glasfloss Safety-Grille Filter offers you the most for your money in any heating or air conditioning installation."

"See this? The old metal grille has been eliminated. The Safety-Grille chipboard won't nick hands or cut fingers because there are no sharp edges. This is an important safety angle for maintenance men who must handle hundreds of filters when making a filter bank change."

"This should happen to a filter? Just in case you ever bent a Glasfloss Filter like this, you'd find it would snap back in shape. That's because of its one-piece chipboard construction. No metal grille to get bent out of shape. There's less chance of filter damage in transit, storage and handling."



"Efficient? You bet! But don't take my word for it. Try Glasfloss Fiber Glass Safety-Grille Filters yourself and see how well they perform in actual service. Your local Glasfloss Distributor or PPG Warehouse carry the complete range of sizes. Call them for service, and tell them Garry sent you."

Glasfloss® Safety-Grille* Filters are a product of the Fiber Glass Division of Pittsburgh Plate Glass Company

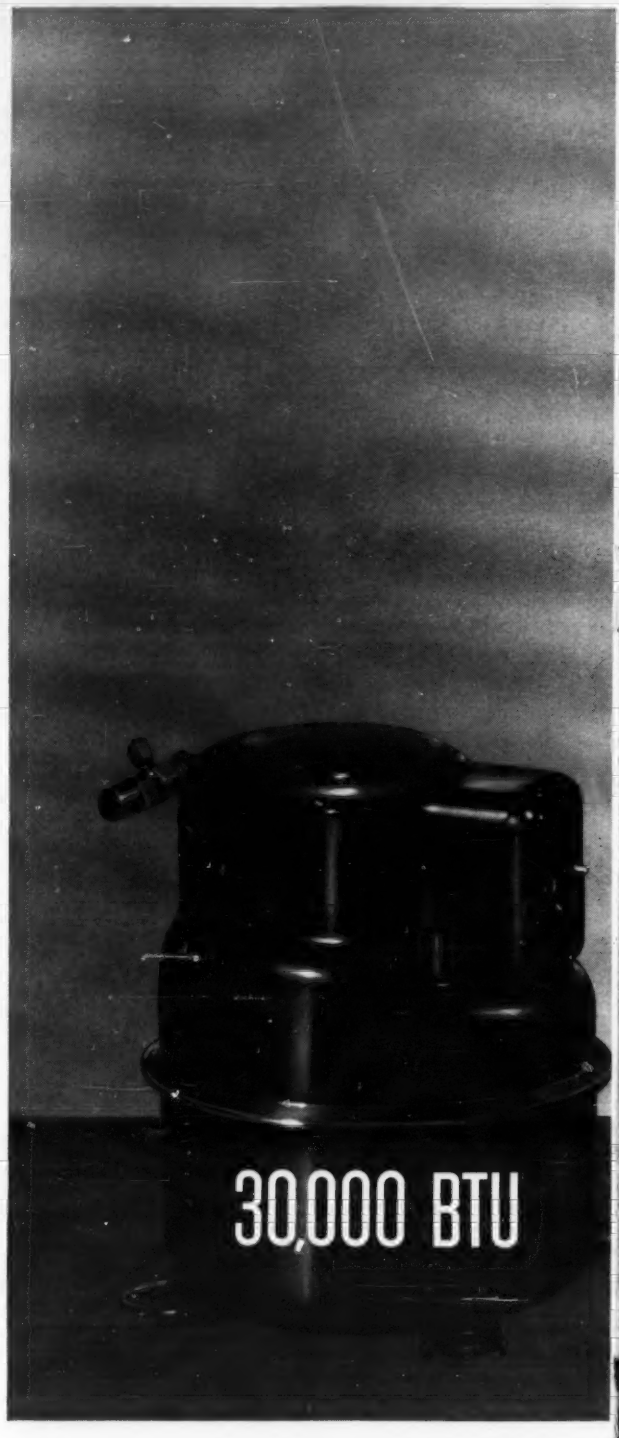
Sales Offices are located in the following cities: Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh and St. Louis

*Trademark

FIBER PPG GLASS PITTSBURGH PLATE GLASS COMPANY

30,000
36,000
42,000
BTU SIZES

SAVE WEIGHT, SAVE SPACE, CUT COSTS!



"Let me tell you

"As a Bendix-Westinghouse engineer I have just seen the first production models of three new compressors—30,000, 36,000 and 42,000 BTU's respectively—that I am confident will help make history for the air-conditioning industry. No compressors of their size can deliver so many BTU's. No compressors of their BTU ratings were ever so small and compact. And the happy result: now the industry can design *without compromise* for the home air-conditioning field!

about these three great new compressors"

"For an example of what I mean, look at the air conditioner market for 4-5 room houses. Until now compressors have been either too large or too small. But with the new 30,000, 36,000 and 42,000 BTU rated units you can give this mass market just what it wants.

"Here are some reasons, over and beyond capacities, that help these new compressors surpass anything now on the market.

"One important reason is the surprising savings in space. And this smaller size is due to many factors. Better design is one. The high-speed motors are another because they allow use of smaller pistons with corresponding reductions in the sizes of the crankcases.

"The way vibration is reduced is really important too.

"Prices? I can assure you, as startling as it may seem, that these great new Bendix-Westinghouse compressors are priced lower than any other of similar capacity now on the market. In fact, prices are reduced as much as 25%.

"And they're really compact! Width, for example, is reduced 25%; weight 40%.

"We look upon these compressors as most significant engineering contributions to the industry.

"If you design, manufacture or sell air-conditioning units, you will want further information on how these new compressors, with capacities never before available in such compact size, open up whole new markets for your products."

Bendix-Westinghouse

EVANSVILLE, INDIANA

A division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio. Export Sales: Bendix International, 205 E. 42nd Street, New York 17, New York.

2,829,800 Refrigerators Sold

Domestic Freezer Sales Top Million During November

NEW YORK CITY—Total industry sales of farm and home freezers in 1958 passed the million mark during November, according to a statistical bulletin of the National Electrical Manufacturers Association.

November freezer sales totaled 89,400, compared with 60,800 in the same month of 1957. This pushed sales for the first 11 months of 1958 to 1,035,300, against 877,600 in the like year-ago period. The 1958 figure includes revised data for October, it was noted.

Sales of electric household refrigerators in November came within 900 of equalling the year-earlier total. Sales in that month amounted to 245,500, compared with 246,400 in the same month of 1957. For the first 11 months of 1958, sales totaled 2,829,800, down from the 3,135,400 sold in the like year-ago period.

Oct. Sales Equal '57 for Commercial Distributors

WASHINGTON, D. C.—October sales of air conditioning and commercial refrigeration equipment distributors were unchanged from a year ago and up 3% compared with September, according to the monthly wholesale trade report of the Census Bureau.

For the first 10 months of 1958, their sales showed no change from the like period of 1957. End-of-October inventories gained 3% compared with stocks on hand a year earlier and were the same as on Sept. 30.

Sales of plumbing and heating equipment and supplies distributors in October rose 2% from a year earlier and were 10% higher than in September. However, their sales for the first 10 months of this year were off 6% from the corresponding 1957 period. Their end-of-October inventories increased 3% compared with a year ago and declined 1% compared with a month earlier.

Sept. Compressor Body Shipments Up 20% Over '57; 9 Mos. Still Down

WASHINGTON, D. C.—September shipments by manufacturers of compressor bodies were about 20% ahead of similar shipments the previous September, Air-Conditioning & Refrigeration Institute's Small Compressor Section reported.

This was the second consecutive month in which shipments ran ahead of those for the corresponding month in 1957, ARI said.

However, September's shipments of 238,166 units (compared with 187,000 units in September of 1957), brought the total shipments for the first three quarters of 1958 to 2,811,238 bodies, about 12.4% under the figure for shipments in the first three quarters of 1957, which was 3,334,171 bodies.

At the same time, ARI reported that 92.8% of compressor bodies sold during the first three quarters of 1958 were sold as compressor bodies, compressors, or condensing units, only 7.2% being sold by their manufacturers in unitary end-use products.

Other manufacturers (of end-use products) accounted for 86.9% of the sales, with 13.1% going to "all other sales," a category including sales to non-manufacturers, distributors, jobbers, dealers, and retail customers.

Shipment figures for the various categories, and names of reporting companies, follow:

MANUFACTURERS' SHIPMENTS OF COMPRESSOR BODIES PRODUCED BY REPORTING COMPANIES

(Except for household refrigerators)

*Horsepower	Shipments Sept., 1958	Including Jan.-Sept., 1958	Exports Jan.-Sept., 1957
⅛ & under ..	†100,847	†877,786	337,514
¼			592,947
⅓	22,683	167,153	193,201
½	8,247	159,541	83,141
¾	5,939	58,554	350,201
1	38,057	578,937	789,984
1½	12,650	208,245	201,955
2	10,819	234,279	188,339
3	7,380	86,059	84,047
5	3,527	55,707	61,854
7½	2,542	27,248	37,447
10	784	8,171	8,627
15	395	3,684	2,856
20	137	1,495	1,799
25	190	1,495	1,498
30	310	1,444	
40	183	1,500	
50	112	1,060	‡5,633
60	77	761	
75	47	533	
100 & over	29	332	
Total	**214,955**	**2,473,974**	**2,941,043**
For Auto a-c— Total ...	23,115	335,991	391,960
For Ammonia— Total ...	96	1,273	1,168
Grand Total	**238,166**	**2,811,238**	**3,334,171**

*For all refrigerants **except** ammonia (excluding units for automotive air conditioning).

†Combined in order to avoid disclosing the figure of individual companies.

‡Breakdown of 30 hp. & over not available for 1957.

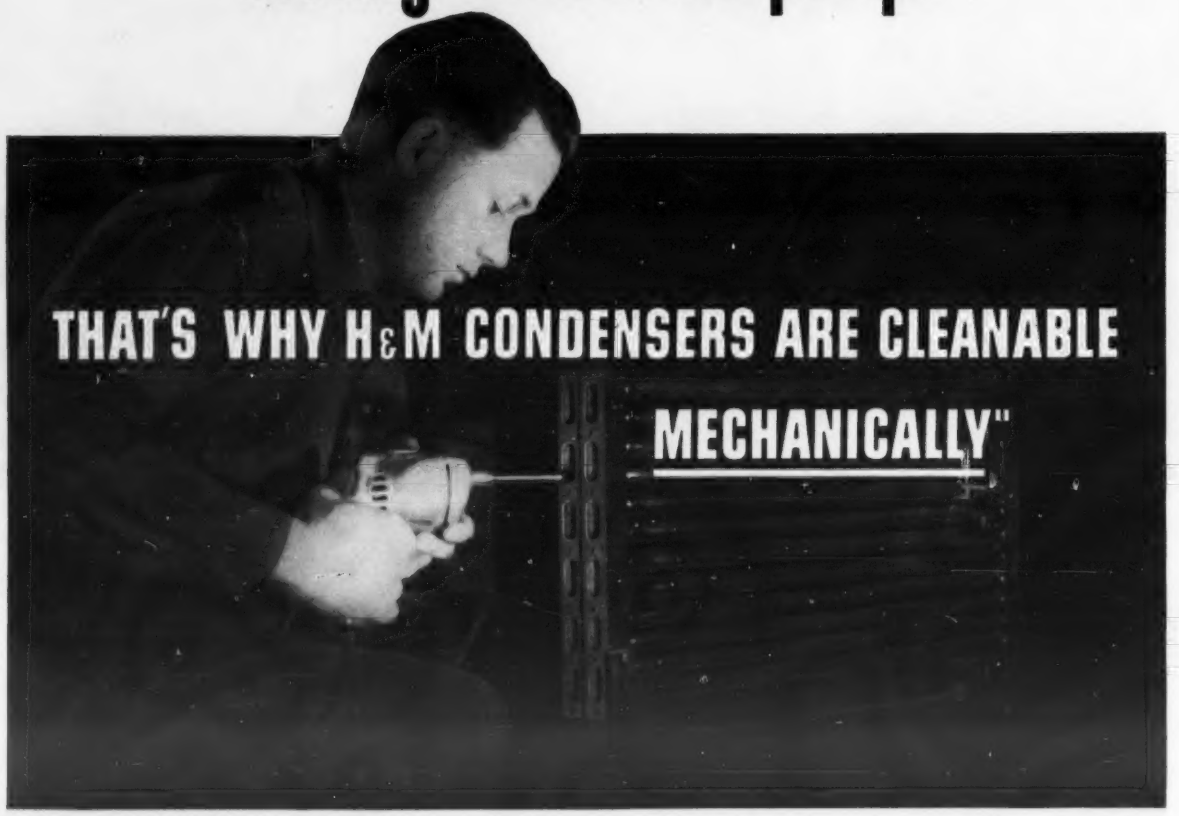
Reporting companies: Airtemp Div., Chrysler Corp.; Bendix-Westinghouse Automotive Air Brake Co.; Brunner Div., The, Dunham-Bush, Inc.; Carrier Corp.; Copeland Refrigeration Corp.; Curtis Mfg. Co., Refrigeration Div.; Frick Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; Kelvinator Div., American Motors Corp.; Lehigh, Inc.; Tecumseh Products Co.; Trane Co., The; Vilter Mfg. Co.; Westinghouse Electric Corp.; Worthington Corp.; York Div., Borg-Warner Corp.

This summary includes all compressor bodies shipped by the reporting companies **regardless** of whether they were shipped separately or incorporated into a condensing unit or unitary end-use product (such as a room air conditioner, display case, freezer, or commercial refrigerator). Shipments for export are included. Shipments for household refrigerators are **not** included.

In order to avoid duplication of reporting, shipment figures were requested only from companies that assembled the machined compressor casting with the components necessary to make a complete compressor or motor-compressor assembly.

SO HALSTEAD & MITCHELL ENGINEERS SAID:

"Harsh chemical cleaners ruin condensers, cooling towers and pumps



Scale and sludge which reduce heat transfer can be removed easily from Halstead & Mitchell *Cleanable* Water-Cooled Condensers. A simple, spiral cleaning tool—available from your local H & M distributor—and an ordinary electric drill can be used to clean the water tubes safely, mechanically. No need to use strong chemicals, which can seriously shorten the life of your condensers and ruin cooling towers and pumps, too.

H & M Condensers have double-tube design, seamless copper tubes. Counterflow of refrigerant and water assures maximum heat exchange. Brass headers are quickly removed for cleaning. All H & M units are U/L approved for use with Refrigerants 12 or 22.

ALL H & M WATER-COOLED CONDENSERS ARE CLEANABLE

STANDARD DUTY (Type EL) are made with extended surface water tubes. Ideal for water-cooled systems under all average conditions. ⅓ thru 3 tons.

HEAVY DUTY (Type T) condensers have a highly favorable fouling factor and are designed for long service between cleanings. ⅓ thru 25 tons.

SEA WATER DUTY (Type SW) are made with cupro-nickel water tubes and naval brass headers for resistance to impure water. ⅓ thru 25 tons.

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Ask for H & M products at your distributor's. Write for descriptive literature. Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.

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As we enter our twenty fifth
anniversary year, we are proud...
proud not for ourselves,
but for the quarter of a century
of trust, patronage
and loyal support from you,
the Wholesalers, Manufacturers,
Service Engineers,
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Engineers in the
Air Conditioning and
Refrigeration Industry...
without whom, this
would not be possible.

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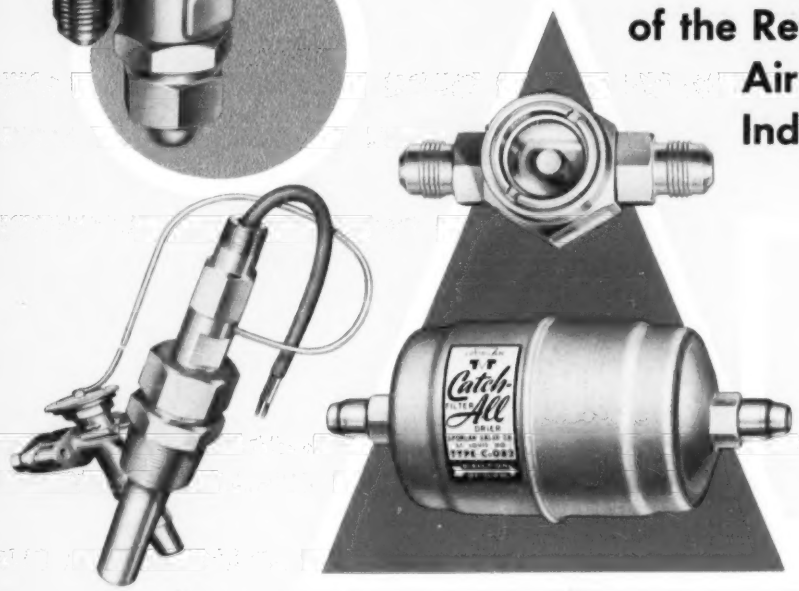
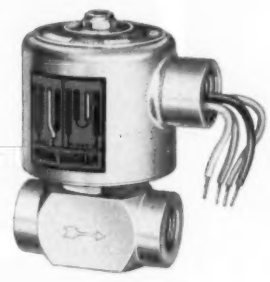
to fulfill the needs of the Refrigeration and Air Conditioning Industry





Sporlan will continue to expand and perfect its combination of right down the line Peak Performance Products . . . the Catch-All filter-dryer, the See-All moisture and liquid indicator, Solenoid Valves, Thermostatic Expansion Valves, Refrigerant Distributors and the Level-Master control for any commercial or industrial Air Conditioning or Refrigeration job.

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Our 25th Anniversary.....1934-1959

LITHO IN U. S. A.

First 'Ucon' Refrigerant Order Shipped to Cleveland Wholesaler

(L. to R.) Union Carbide's Tom Harley and John Fleck shake hands with Rod O'Flaherty and Jim Downs of Refrigeration Supplies, Inc.

CLEVELAND — A milestone in the refrigerants field was reached in early December, 1958, when a shipment of new "Ucon" refrigerants was made to Refrigeration Supplies, Inc., at its Cleveland headquarters.

This was the first shipment made from the new 50-million-pounds-per-year fluorocarbons plant of Union Carbide Chemicals Co., Div. of Union Carbide Corp., at Institute, W. Va. The event marks Carbide's entry into the refrigerants field.

To commemorate the first shipment, Tom Hartley, Carbide's manager of Ucon refrigerants sales, presented a formal bill of lading to Jim Downs, president of Refrigeration Supplies. He was accompanied by John Fleck, technical representative of the chemicals company, who made the original sale to Downs.

Comprising the first shipment were 15 145-lb. gold cylinders of Ucon-12, color-coded with white bands and caps. First and second purchases of Ucon refrigerants were made on the same day by Harold Folliett, Kay Refrigeration Co., and Richard A. Shanower, R. A. Shanower Refrigeration Co., respectively.

Carbide's management recently announced its decision to market its new fluorocarbon refrigerants through refrigeration parts wholesalers. The company is employing its extensive sales force, operating from 28 district offices in the U. S., to call on wholesalers. It is also using the facilities of a network of 47 warehouses. Supplementing the sales force is a staff of refrigeration specialists.

A complete line of refrigerants, packaged in standard commercial cylinder sizes, and color-coded according to industry specifications, is being marketed by Carbide, it was said.

A technical service laboratory for Ucon refrigerants is part of Carbide's laboratory organization. The facility will be transferred to the new Union Carbide Technical Service Laboratory that is under construction in Westchester County at Eastview, near Tarrytown, N. Y.

Conference Tackles Noise In Buildings

WASHINGTON, D. C.—Opening a year of expanded technical program activity for the Building Research Institute will be a conference on January 14-15 at the Hotel New Yorker, New York City, on noise control in buildings.

The meeting is designed to put noise control into language understandable to everyone associated with buildings, their design, construction, maintenance, and occupancy.

Speaking on the "Effects of Noise on People" will be Louis S. Goodfriend whose firm of acoustical consultants is located in Montclair, N. J.

"Mechanical Equipment Noise" will be analyzed by Conrad J. Hemond, Jr., chairman of the Dept. of Engineering at Hillyer college, University of Hartford; acoustical consultant Howard C. Hardy of Howard C. Hardy Associates; and Richard Wells, acoustical engineer for General Electric.

The problem of specifications for the control of noise from mechanical equipment will be analyzed, and solutions recommended, by New York engineer Alfred L. Jaros, partner in the firm of Jaros, Baum & Bolles.

And, in addition to other facets of the subject which will come up for scrutiny during the two-day session, there will be a final roundup by a group of conference participants of the unsolved problems in sound transmission and noise control, pointing the way to further research and development needed in this field for the buildings of the 1960's, it was pointed out.

Eight industry organizations will act as sponsors for the conference.

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You can make your job easier with Century Electric's complete line of fractional-horsepower motors. Here's how:

Easy ordering—You save time because you get answers to all motor problems from one source. This means you don't have to shop around for the motor you need. You name it—capacitor, jet pump, unit heater, oil burner, brake, gear—any one you want, and in all types of enclosures too.

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Made of heavier materials! Has exclusive inverted rib, that provides more strength at the bend of clip . . . and, of course, adds the benefits of famous "Snap On" feature! Send for literature.

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Harvey Tells NWAHACA:

Furnace Sales Increase Without Rise In Dollar Volume Makes '59 Doubtful

CLEVELAND—Furnace sales will be up 10% for 1958 but with no increase in dollar volume, and sales could slip in 1959, perhaps substantially, warns Lyle C. Harvey, senior vice president, Carrier Corp.

Addressing a luncheon at the 45th annual convention of National Warm Air Heating & Air Conditioning Association here, Harvey cautioned that "while 1959 is expected to be a good year generally . . . we could make a mistake by assuming that the increased furnace activity in recent months will automatically continue."

Whether housing starts will increase in 1959 seems questionable to Harvey, so he wonders:

"While we are now shipping 10% more goods this year at no increase in dollar value, what will happen when we move 10% to 20% fewer units at even lower prices?"

Most of Harvey's talk, under the title of "Wanted — More Neurotics," was devoted to what he considers a need for more "neurotics" in the furnace industry: "people who just can't stand things the way they are, who are concerned because dealer loyalty is at a low ebb, who can't stand the fact that the wholesaler is doing less and less of a wholesaling job and more and more of a broker's job, people who don't believe that the manufacturers' push for volume should be the start of a price racket or race, who get hopping mad because the price approach we developed a few years ago for increment sales has now become the standard procedure for all business, who are fed up with the practice of paying more attention to competitors than to customers."

In Harvey's opinion, "practically everyone is at fault—the manufacturer, the wholesaler, and the contractor-dealer" for this state of affairs.

"Manufacturers, caught in the cost-price squeeze, have seen their profits shrink; wholesalers, pushed to the marginal wall, have sought every possible device to bolster their income, and the dealer, the backbone of consumer durables distribution, has found it increasingly difficult to operate profitably," he declared.

Commenting on the "shopping" attitude of today's consumer, Harvey attributed this to such factors as mail order houses, discount houses, food chains getting into hard goods, install-it-yourself furnace promotions, the step-up of local advertising with emphasis on price, and the disappearance of true salesmanship.

Harvey went on to question the thinking of the dealer handling two or three makes of furnaces instead of concentrating solely on the line that usually gives him most of his sales, and that of the dealer who switches wholesalers for a cheaper price after the first one has helped him build up his sales to sizeable volume.

"I do not want to imply that this is never justified, but I do want to emphasize that a manufacturer and a wholesaler who have helped build a dealer from scratch up to a $25,000 a year account certainly must have had a lot to offer. I say 'had a lot to offer' because any wholesaler who lets this happen must be asleep," Harvey commented.

Various other arguments favoring the need for more "neurotics" were cited by Harvey in his talk, but he offered no pat solution to the problem.

"There are too many people looking for an easy way out and not nearly enough go-getters who just can't tolerate conditions the way they are," he complained. "Most of us are more interested in what our competitors are doing than we are in our customers and in serving them.

"Now, if this mental climate continues and expands, we could be in pretty serious trouble," Harvey fears.

Already, it seems to me, there has grown up a widespread feeling that almost anything or any situation will improve by itself if left alone; a sort of reluctance to exercise initiative. An increasingly better standard of living is being taken for granted. This attitude seems to be: 'we're going onward and upward regardless of what we do, so let's not do anything. Let's just go along for the ride.'

"I don't have to tell you that this country and this industry weren't developed by those who merely 'went along for the ride.' And we don't solve our problems today unless all of us—manufacturers, wholesalers, and dealers—climb into the driver's seat and steer in the right direction."

Carrier Distributor Opens Branch In Rochester, N. Y.

NIAGARA FALLS, N. Y.—Opening of a branch office in Rochester, N. Y. was announced by Air Conditioning Wholesalers, Inc. here.

Taylor D. Johnson, president of the distributorship, has named Andrew E. Feiner of Rochester as branch manager of the new office. Feiner formerly was associated with Carrier in its factory and field organization and later served with one of the company's dealerships in New York City.

The branch office will serve Carrier dealers in the Rochester area with a complete line of heating and air conditioning products, and a full-time servicing organization.

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THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
PRESSURE GAUGES and Dial Thermometers for all services.
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Drymaster balanced filter driers

"Hi-Fi" filter block desiccant . . . super-fine monel screen filter tube and inlet distributor disc help give Drymaster superb filtering and drying properties. Drymasters are available in six different models with 36 different end connection sizes in flare and solder types. Copper extensions allow the use of either hard or soft solder . . .

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What's In Line for '59

Warm Air System Shipments May Top 1.2 Million Units, Up a Bit from '58, Predict NWAHACA, Commerce Dept.

CLEVELAND — A "probable figure" for 1959 shipments of warm air heating systems is 1,200,000 units, state officials of the National Warm Air Heating & Air Conditioning Association here.

The estimated total for shipments in 1958 will approximate 1,150,000 units, it is stated. This represents about a 7% increase over the 1957 shipments.

Forecast for 1959 is based on the assumption that residential construction will continue as forecasters are stating, at the high level which has been under way during half of 1958. This figure could even be higher, say the association officials, if a greater portion of the potential market in modernization work is achieved.

Other markets for warm air heating systems, such as tenant-operated warm air heating systems for apartment construction can also increase the industry's potentials.

In its "Outlook and Review" for the warm air furnace industry, the U. S. Dept. of Commerce is even more optimistic in its predictions for 1959, stating that a probable minimum of shipments for the year will be 1,225,000 units.

"The historical peak of warm air furnace shipments occurred in 1955, coinciding with a record year for new housing starts," states the Commerce Dept. report.

"Replacement demand, however, is a major factor with respect to both total sales and profits. Since 1951 growth of the industry has been steady and consistent, reaching an all-time high of 1,406,000 units in 1955.

"The decline in new housing starts since 1955 resulted in a decline in warm air furnace shipments. It appears, however, that for the future the favorable factors outweigh the unfavorable factors."

The report further stated that "demand for forced warm air furnaces dominates the warm air heating industry. This type is drawing sales from floor and wall-type units and from gravity type units.

Shipments of forced warm air furnaces for the first nine months of 1958 were 6% above the same period for 1957, the government report states, while shipments of the gravity type declined 10% compared to the same period in 1957. It is further predicted that shipments of gravity type units in 1959 will fall to less than half of those in 1955.

The report takes note of the "heat pump," stating that it is receiving intensive study by the industry. "About 10 manufacturers have produced pilot runs to be used for field tests, and possibly an additional 50 to 60 have models of this unit in their research and development departments. The industry apparently thinks this new product has definite possibilities for increasing the present market for forced warm air heating."

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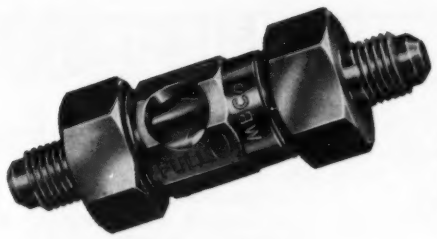

Sightmaster

liquid indicators

Tells at a glance the condition of refrigerant. Available in sizes from ¼" through ⅝" interchangeable male flare, female flare and solder end connections. This makes possible 42 combinations ready for installation on any system.

Globemaster

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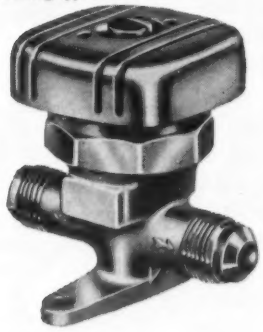
Carefully engineered and constructed of highest grade materials to give long trouble-free service on every installation. Made in straight-through, angle, two-way and three-way models either backseating or non-backseating types.



Linemaster valves

Feature super-sealing with triple diaphragm construction. Linemaster regular (non Backseating) and Linemaster Special (Backseating) are available in two-way, three-way, straight-through and angle, plus hand expansion and purge types in all popular end connections.

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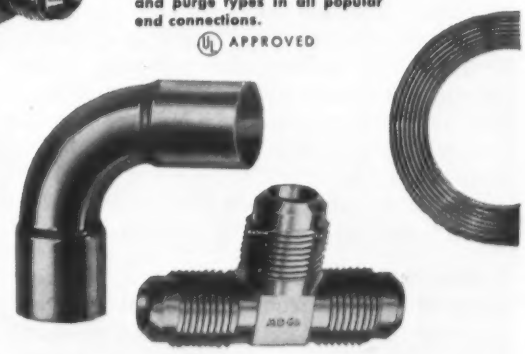
pressure-relief valves

Provide positive action and high volume discharge without chatter or vibration. Available in safety-sealed standard pressure settings from 150 to 450 lbs. in straight through and angle types. Meets A.S.A. B 9 safety code, certified by National Board.

Streamline copper tube and fittings

Fine quality cleaned dehydrated and sealed copper tubing of uniform soft temper for easy bending and hard-drawn copper tube in straight lengths in a variety of sizes. A complete line of high quality solder-type fittings manufactured from seamless copper tubing and flare fittings from forged brass or brass rod.



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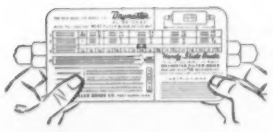

Now, revolutionary slide-guide helps you select the correct Drymaster filter drier for every installation quickly and easily . . . Available free . . . Send for yours today.

Big, fact-filled catalog R-157 gives complete information on all Mueller Brass Co. refrigeration and air conditioning products. Get your copy today.

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New Janitrol Posts Spread Sales Responsilibilities

COLUMBUS, Ohio—Appointment of L. J. Monahan, W. R. Egan, and K. G. Hull as regional sales managers has been announced here by C. C. Owen, national field sales manager, Janitrol Heating & Air Conditioning Div., Surface Combustion Corp.

According to Owen, the new positions were created as the first step of an over-all long range plan of decentralization of field sales responsibility and authority.

Planned objectives include the location and development of new cooling markets, closer study of product and market potentialities for all products—plus a general speed-up of all phases of the field sales function, it was stated.

Monahan, who lives in Columbus, will handle the central region, consisting of the Buffalo, Cleveland, Pittsburgh, Detroit, Indianapolis, Cincinnati, Louisville, and Columbus districts.

Egan, of Denver, will handle the western region, consisting of the Denver, Kansas City, Omaha, Oklahoma City, and Lubbock districts.

Hull, of New York City, will handle the eastern region, consisting of New York, Boston, Springfield, Mass., Philadelphia, Washington, and Richmond districts.

All other districts will continue to be handled by headquarters in Columbus, Owen said.

Power Conference Set For March 31-April 2

CHICAGO—Nearly 90 papers will be presented at 27 technical sessions scheduled for the 21st annual American Power Conference to be held at the Hotel Sherman here March 31 through April 2.

One of the sessions will be devoted to space heating, according to conference director R. A. Budenholzer, professor of mechanical engineering at Illinois Institute of Technology, which is sponsoring the conference.

In addition to the technical sessions, there will be three luncheons and an All Engineers dinner.

Hesling Chairs NHAW Convention May 10-13

LOS ANGELES—R. W. Hesling of Van Nuys has been appointed chairman for the convention of the National Heating & Airconditioning Wholesalers to be held here in the Ambassador hotel May 10-13.

Word of the appointment was received from Wilbur R. Bull of Columbus, Ohio, executive director of NHAW, and announced at the November meeting here of Region 10 members.

C. T. Smallcomb, president of Smallcomb Electric Co. here, was elected by Region 10 members to be NHAW trustee for the region.

They'll Do It Every Time

by Jimmy Hatlo

THINGS WERE GOING SWELL AT THE JUGGERNAUT EIGHT. FIVE SALESMAN AND ALL MAKING GOOD COMMISSIONS.
JUGGERNAUT-V
1959
IN FACT THINGS WERE TOO GOOD FOR THE BOSS TO LET ALONE--THEY DOUBLED THE SALES FORCE--NOW NOBODY IS MAKING ANY DOUGH....
THANK AND A HAT TIP TO BUCK & GENE, 301 CENTRAL AVE., NEWARK, N.J.
JUG
JIMMY HATLO
11-24
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Soothsayers are Cautious: But 1959 Could Be A Banner Year

IT'S NO SECRET that 1957 and 1958 were disappointing to many purveyors of heating, air conditioning, and refrigeration equipment. Here's an amalgamating industry which has an undeniable growth curve, but which probably has been top-level "oversold" in recent years—in terms of expectations, that is.

Perhaps that's why there's a dearth of optimistic Predictions for the Future, from industry pundits, at this moment.

Normally this publication is hard-put to contain all the predictions issued at a year-beginning. Regularly they have spilled over from the front page to rear-end sections, into Editorials, and even into "Inside Dope."

Astonishingly, as we put together this first issue of 1959, quotations of this ilk are conspicuous by their near absence. You see, quite a few executives in the heating, air conditioning, and refrigeration industries have lost their teeth on previous crystal-balling efforts.

Like leaders of the similarly affected automotive industry, they're courting anonymity, and quoting government and university economists as to the future, rather than sticking out their own necks at this particular moment.

Herewith is a condensation of learned predictions for 1959 by economists *outside* of our industry:

Progress upward, but no bing-bang boom. Everything will be on the upswing—sales, productivity, profits. Inasmuch as costs won't rise much, everybody should benefit.

Although the Federal Reserve is clamping down on credit, don't expect too much impedence to business from this direction. Nor will taxes go up in 1959, except at state and municipal levels in some cases.

Federal Government spending will increase by $X billions over-all. Moreover, states and towns will step up their expenditures by at least $3 billion for schools, waterworks, roads, etc.

Federal Bureaus will be shelling out $5 billions more for defense, farm aid, and highways than they did in 1958; and *this* money pumps directly and quickly into the domestic economic bloodstream.

Led by consumer durables (expected to leap by 15%) total output of goods and services in the U.S.A. will zoom nearly 10% in 1959, figure the professional economists. Gross National Product will hit $475 billion, up from $440 billion in 1958. Personal income should climb $20 billion—a gain of 6%—to $374 billion.

Factory production will average out at 144% of the 1947-49 period, and possibly a little greater. In 1958 the comparable figure was 134%. Additional good news for our industry: New housing starts may top last year's 1.1 million by 400,000.

Credit needs will grow as industry starts to rebuild inventories again, and adds to production facilities. Governments also need credit and cash—in large chunks. Thus "big money" may become scarce (as contrasted to "little money" for home mortgages and instalment paper).

Productivity should rise faster than costs, unions willing. Total corporate net before taxes therefore may even reach $48 billion, as against last year's $37 billion. (Best year on record was 1956—when the total profit take was $45.5 billion).

Therefore 1959 is seen as a year of gathering momentum—a year of transition to the fabulous 1960's when, barring war, genuine boom years may develop, the likes of which the world has never seen before.

Those few air conditioning industry executives who privately hazard an estimate of their own firms' sales gains in 1959 anticipate increases of 10 to 13%. But, they point out, this improvement factor is measured against "a poor year." Other anonymous executives expect "modest or gradual" improvement, and a 1959 that is "slightly better in billings—much better in bookings."

Real net corporate gains of 1959 are likely to develop from such recession-bred measures as cost-cutting, increased efficiency, modernization, tighter scheduling and inventory control, and new product development. Programs of this sort, inaugurated last year, will begin to substantiate dividends in coming months.

You can be sure that management, which now counts the aforementioned economies as a recession "blessing," intends to continue them next year to embellish profits despite stiffening competition.

Happy New Year! From our vantage point, it looks prosperous and promising.

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AIR CONDITIONING HEATING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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"The mass of people must be barbarous where there is no printing, and consequently knowledge is not generally diffused. Knowledge is diffused among our people by the newspapers."—*Sam Johnson, Boswell's Life,* March 31, 1772.

WANTS MANUFACTURERS TO CUT WARRANTY PERIOD

Clinard Electric Co.
Winston-Salem, N. C.

Editor:

The manufacturers of appliances can help dealers and create a more healthy economic condition among them if they would reduce their warranties to 90 days. It certainly is a heavy drain on the resources of appliance dealers to have to make free service calls on appliances for 12 months. If a customer knows he is getting free service, he will call many times when there is nothing wrong with his appliance. He will call when a fuse blows and expect the dealer to not make any charge.

Sometimes after a customer has had an appliance for several months and they change maids or the owners do not know how to operate one, they put in a service call and expect it free because they have not had it one year.

On television sets, free service calls are good only 30 days and we do not know of any reason why manufacturers require dealers to give 12 months' free service on an appliance.

The manufacturers should get together and take this unnecessary expense off of dealers. The owner of a Cadillac car gets only 90 days' free service and warranty.

I would like to see you or someone bring this unhealthy situation to the attention of the appliance manufacturers.

B. C. CLINARD,
President

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING, HEATING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10 per year.

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TOWER MAINTENANCE

Periodic Microbiological Examinations Suggested

PITTSBURGH—"Fungi—in many cases—are the cause of failure of tower wood components; deterioration is not necessarily a result of chemical attack and weathering," according to M. M. Fetkovich of Hagan Chemicals & Controls, Inc.

Monthly visual inspections often turn up typical rot features—such as surface checking and softening, brashness, and internal discoloration of softness.

"However," points out Mrs. Fetkovich, "early stages of deterioration are not always visible to the eye. Laboratory work is proving to be a major factor.

"Periodic microbiological examination of wood from water cooling towers offers the best means of checking the condition of wood and need for special treatment."

"Conclusive evidence is not always found in one microbiological examination of wood from a cooling tower. Further testing is often necessary. A series of investigations is not wasted effort. Rather, the series of tests serves as a point of reference and provides more valuable information.

"Once live fungi are determined," says Mrs. Fetkovich, "there is much to be done in the way of preventive protection of existing towers—the most successful of which is double diffusion treatment of the wood itself. Past difficulties have also demonstrated the advisability of constructing new towers with wood that has been pressure treated prior to erection."

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

A Practical Field Test for Acid

Preliminary tests indicate that the normal red, yellow, blue industrial wiping cloths used by many firms can serve as acid indicators for refrigeration systems.

Word of this came from the Ben Rhineforts (father and son), Fort Worth, Texas, who first observed the reaction on the towels when a red wiping cloth was used temporarily to cover the suction intake of a compressor which had been removed after a burnout.

The exposed portion of the towel turned greenish-blue "in a matter of minutes" according to the Rhineforts, and they have been using this method of acid detection for several months now. Cooling tower water can also be checked for acid with these towels, they have found.

Asked by the NEWS whether they had verified the towel reaction by checking with a standard acid indicator like litmus paper, Ben, Jr. answered, "We have used litmus paper for positive identification and the towel test has proved to be infallible so far."

At the request of the NEWS, A. L. Stuever, chief chemist, Mueller Brass Co., Port Huron, Mich., conducted laboratory tests on a towel submitted by the Rhineforts, as well as on another brand of towel used at Mueller. His reaction: "I've just decided never to purchase litmus paper for the lab again—our wiping cloths are proving to be much better!"

Stuever exposed the test towels to fumes and various solutions of hydrochloric acid and obtained a positive change of color in each instance.

He extracted the dye from the Texas red towel with water, and found that it turned blue-purple even when extremely diluted (one part to 3,000 parts water) acid was added. The solution turns red again when an alkaline substance like ammonia or sodium hydroxide (lye) is added. Thus, the material acts in a manner identical to true laboratory-type reversible acid/alkali indicators.

It would be of interest if other servicemen would try this practical towel test for acid and report their findings to this column.

Compressor Opener Simplifies Task, Users Indicate

NEW YORK CITY—"While grinding open a hermetic compressor can never be an agreeable task, it can be done profitably and without tying up a man by using the Frankell hermetic compressor opener," states a user of the device.

Another user, Leo Armada, Refrigeration Repair Co., Newark, N. J., has opened an average of 20 compressors a week for over a year. According to Armada, the opener works well so long as it is cared for.

"Like anything else, it can be abused and overworked. Once we became familiar with its characteristics, it began performing a valuable function in our shop," he said.

A self-contained, flexible machine, the Frankell opener will grind the weld on "any hermetic compressor up to 20-in. diameter, regardless of the position of the weld," states Frankell Mfg. Co.

Operation of the opener requires only a few minutes of the man's time, freeing him for other work while the machine operates. The compressor is placed on a turntable; the cutter is positioned; timer is set, The unit stops automatically. the unit stops automatically.

The manufacturer of the device lists the following approximate grinding times:

Approximate Grinding Time

Norge	20 min.
Coldspot	35 "
Frigidaire	15 "
Tecumseh Rd.	25 "
Tecumseh Oval	35 "
*Servel Oval	1 hr. 15 "
Kelvinator	35 "
Westinghouse	20 "
Crosley	35 "
Admiral	25 "
Sleeve Type	25 "

*Commercial.

According to the company, the compressor opener can be purchased or rented. If rented, part of the rental fee can be applied toward purchase.

one source

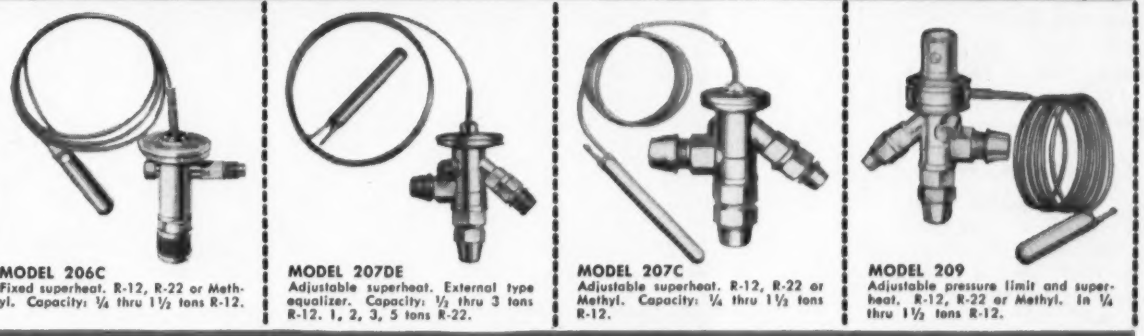
for all thermostatic expansion valve needs

Single out A-P for triple duty

A-P's complete capacity line of thermostatic expansion valves (¼ to 25 tons, R-12) is geared to perform on:

1. **Most commercial applications** where pressure limit is not required. Standard liquid charged TXVs may be applied universally. Special liquid charges are available for critical applications.
2. **Air conditioning applications** requiring pressure limit. A-P gas charged (type 209) TXVs are ideal for the job.
3. **Low temperature applications** where pressure limit is required. Use A-P liquid charged valves with adjustable pressure limit.

These valves complement industry's most complete line of refrigeration and air conditioning controls. Take advantage of this single source availability — your assurance of dependable performance.

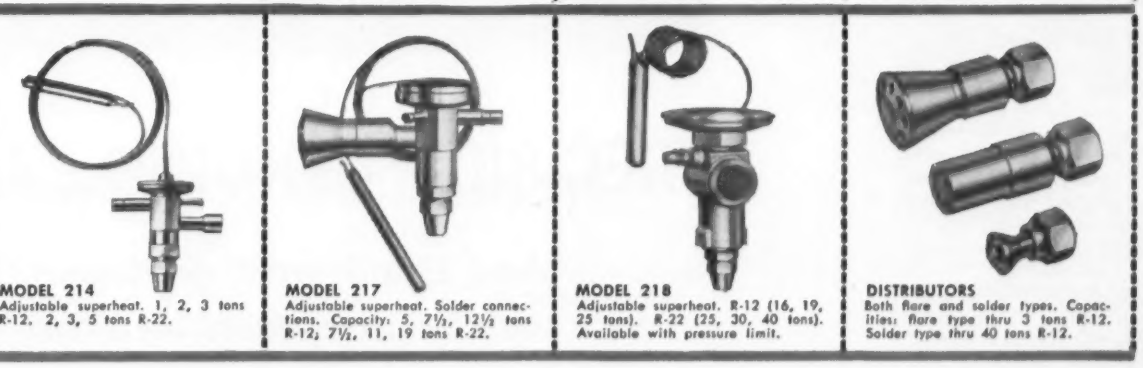


MODEL 206C Fixed superheat. R-12, R-22 or Methyl. Capacity: ¼ thru 1½ tons R-12.

MODEL 207DE Adjustable superheat. External type equalizer. Capacity: ½ thru 3 tons R-12. 1, 2, 3, 5 tons R-22.

MODEL 207C Adjustable superheat. R-12, R-22 or Methyl. Capacity: ¼ thru 1½ tons R-12.

MODEL 209 Adjustable pressure limit and superheat. R-12, R-22 or Methyl. In ¼ thru 1½ tons R-12.



MODEL 214 Adjustable superheat. 1, 2, 3 tons R-12. 2, 3, 5 tons R-22.

MODEL 217 Adjustable superheat. Solder connections. Capacity: 5, 7½, 12½ tons R-12; 7½, 11, 19 tons R-22.

MODEL 218 Adjustable superheat. R-12 (16, 19, 25 tons). R-22 (25, 30, 40 tons). Available with pressure limit.

DISTRIBUTORS Both flare and solder types. Capacities: flare type thru 3 tons R-12. Solder type thru 40 tons R-12.

CONTROLS COMPANY OF AMERICA

Manufacturers of A-P CONTROLS

2460 N. 32nd Street • Milwaukee 10, Wis.

COOKSVILLE, Ontario • NIJMEGEN, Holland

Controls That Make Modern Living Possible

Write for Book E220 — gives complete data on A-P thermostatic expansion valves.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

inventories are at a very low ebb."

In the electronics industry, Mr. Pope found that Motorola had announced record sales, and in at least one product, supplies were being rationed to customers.

"Furthermore, one can readily detect an ever-growing interest in U. S. investment in Australia, and the time is now ripe for us to attract more American capital," Mr. Pope added.

Accompanying Mr. Pope to the U.S.A. were his son, Ian; B. F. Israel, K. Johnson, S. Grieve; and one of the best friends "Dope" acquired on his second tour of Australia last April-May: Darby von Sanden.

Those Rugged Australians

Athletes from down under have proved themselves so capable that competitors from other nations have welcomed a chance just to practice with them.

A championship swimmer from Pakistan approached a burly Aussie standing by a British swimming pool.

"We swim a couple of lengths, you and I, please?" he asked politely.

"Why, sure," said the Aussie and dived in.

The informal race that followed was brisk, hotly contested, and ended, of course, in an Aussie victory.

"Please," said the defeated Pakistani as he climbed from the pool grinning widely at this test of reflected glory, "what is your regular distance?"

"Distance?" said the surprised Aussie. "Oh, I have no distance. I'm not a swimmer. I'm a wrestler."

Fasten Your Belts, Men

Accidental work deaths total more than 14,000 a year, according to the National Safety Council. In 1937, with a much smaller work force, the death toll was 19,000.

You can help prevent aching backs from lifting by observing these National Safety Council tips: Bend your knees and squat close to the load, rather than stooping with the legs straight. Keep your back as erect as possible. Get a good grip on the object you're lifting, and lift by straightening your legs steadily.

One person dies accidentally on the job every 37 minutes, according to the National Safety Council. A work injury is suffered every 16 seconds.

Total time lost from work accidents is about 230 million man-days—equal to the year-long shutdown of a plant employing nearly a million workers.

National Safety Council studies show that more accidental injuries result from falls than from any other cause except traffic accidents. Most falls can be avoided if you keep things neat and orderly, wipe up spilled liquids immediately, avoid using makeshift ladders, and do not rush about unnecessarily.

Add Newspaper Boners

Someone is sure to say, "I don't think teachers do too badly, considering they work none months a year." — *Wisconsin State Journal.*

The Lion of Lucerne is a memorial to the Swiss Guards who died defending Louis XVI from a job during the French revolution.—*Raleigh News and Observer.*

Fights Take Over Ballroom Tonight.—*Detroit News.*

"But the Town House appointments taken as a whole blend into a 'togetherness' much as the range of instruments of an orchestra run the gamut from the harsh notes of the bass to the delicate emission of the wlue." — *Springfield, Ill. State Journal-Register.*

Taken from program for the 10th International Congress of Refrigeration:

"9. Congress Banquet and other Feshvities?"

She was still wearing the blue satan gown and the high-heeled shoes she bought for her marriage. — *Salem Oregon Statesman.*

Experiments Not Wholly Unpleasant To Engaged Couple.—*Lancaster Intelligencer-Journal.*

Seal To Testify At Heating On Seaway Tolls. — *Newport News Daily Press.*

Special Envoy Robert Murphy tells Londoners he believes way to Middle East can be found.—*Chicago Tribune.*

Man Kills Wife, Shoots Himself In Triangle.—*Santa Barbara News-Press.*

If the Do-It-Yourself craze continues, it might exen extend to thinking.—*Office Economist.*

We had been married only a few weeks when I discovered to my joy that Norman had the makings of a real husband.—*Springfield Daily News.*

Several hours passed before that plane was missed, although it had cracked up barely two minutes before takeoff.—*Bethlehem* (Pa.) *Globe-Times.*

Vermonter Says More Than Skiing Goes On In Winter.—*Springfield* (Mass.) *Union.*

Britain Blames U. S. for Sex. *Albany Times-Union.*

Human Slaughtering Measure Signed by Ike. — *Tulsa Daily World.*

Young Lovers Reach Altar 60 Years After Proposal.—*Evansville Press.*

Okay Farm Auction of Murder Victim.—*Sioux City Journal-Tribune.*

He sustained compound farctures of both forelegs.—*Waterbury* (Conn.) *American.*

Out of Our Mailbag

Refrigeration Supplies, Inc.
Cleveland 3, Ohio

Editor:

SIGN IN A CLEVELAND COCKTAIL LOUNGE:

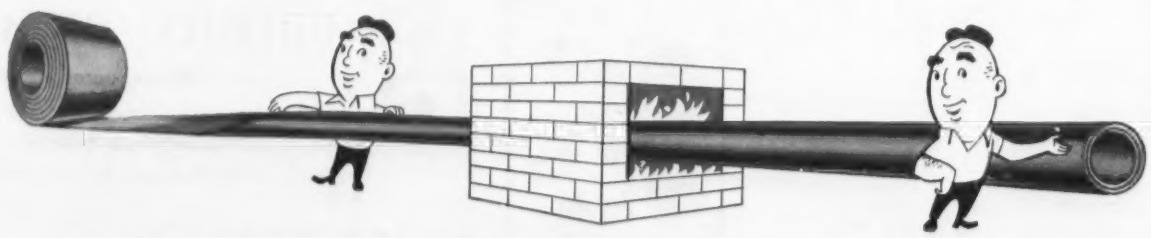
IF YOU MUST DRINK—DRIVE
DON'T PARK
ACCIDENTS CAUSE PEOPLE

ROD O'FLAHERTY

WHY BUNDY LEADS IN MASS-FABRICATION

PRECISION BENDING... Another reason why

And Bundyweld *double-walled* steel tubing can be mass-fabricated into practically any leakproof shape... at minimum cost per unit



Bundyweld starts as a single strip of copper-coated steel. Then it's continuously rolled twice around laterally...

into a tube of uniform thickness, and passed through a furnace where copper coating fuses with basic steel.

Result: Bundyweld Tubing—double-walled, beadless, metallurgically bonded through 360° of wall contact.

Moisture Control Boosts Output, Ups Quality In Oil and Feed Meal Plant

LITCHFIELD PARK, Ariz.—Increased production and higher quality of oil and feed meal is reported by J. G. Boswell Cotton Co. here, with instrumentation that measures and regulates the moisture content of cottonseed meats during processing.

The automatic control system developed by Brown Instruments division of Minneapolis-Honeywell Regulator Co., measures the electrical conductivity of the meats with a probe-type electrode as they pass through a humidifier.

The electrical current, proportional to moisture content, is measured as it flows through a balanced Wheatstone bridge of a "Moist-O-Graph" controller. An electric unit regulates, dependent upon moisture content, the amount of water through a spray valve.

Accuracy of the system is .05% of actual value if cottonseed meats are uniformly compact and pass through the humidifier and past the sensing probe at constant speed, according to Plant Superintendent Dewey Pickett. Variations in density will cause erroneous measurements, he states.

Pickett said moisture control also had reduced the amount of wastes that form in the expeller, substantially decreasing the need for line flushing. In addition, conveyor lines are cleaned without need for disassembling. Moisture control also is credited with increasing protein content of feed meal.

Urges NCRSA Members To Go After It

Industrial Air Conditioning Seen As Bright Spot by Don Petrone

MIAMI BEACH, Fla.—Keep an eye on opportunities in the industrial air conditioning market. It looms as the brightest on the air conditioning profit horizon.

That advice was given to commercial refrigeration distributors attending the 12th annual convention of the National Commercial Refrigerator Sales Association by Don V. Petrone, president of Typhoon Air Conditioning Co., division of Hupp Corp.

Petrone noted that a recent comprehensive survey of the industrial market by du Pont shows that less than 1/10 of 1% of manufacturing areas in the United States are air conditioned.

In 1957, the Minneapolis-Honeywell Regulator Co. published a report entitled "The Economic Advantages of Complete Year-Round Air Conditioning."

"The most startling point in this report," Petrone said, "was that without exception the increase in working efficiency alone of the labor force more than paid for the owning and operating cost of the air conditioning plant regardless of geographic location, plus leaving a healthy profit from this investment to really intrigue the management who wants to increase his profit without relying solely on volume increase.

"Just think of this, men. Here is a field that's waiting for the type of salesmanship that has made possible the modern supermarket of today, the salesman who has sold an 'investment and profit story,' YOU!

"Industrial air conditioning will be sold by contractors who are versed in selling value, and equipped with engineering, installation, and service departments.

"From everything I have been able to observe about many of you members in NCRSA, you have a ready built organization and the necessary team to crack into and dominate this industrial air conditioning market. Some imagination, planning, and guts is all it will take to give you the starting inertia."

Industrial Cooling Installations Are Going In All Over

DALLAS—The new 75,000-sq. ft. plant of the Southwestern Div. of Foremost Dairies, to be built on a 16-acre site at Ambassador Row and Currency Dr. in Brook Hollow Industrial District, will feature year-round air conditioning.

It is scheduled for completion in late April or early May, 1959, and will cost $1,500,000.

• • •

LIVINGSTON, N. J.—G-V Controls, Inc., manufacturer of time delay relays, electrical thermostats, and other components for the electronic and aircraft industry, has moved from East Orange, N. J. to a newly-built air conditioned plant here.

The one-story plant, with both office and manufacturing areas completely air conditioned, permits G-V for the first time to have all its research and development, manufacturing, engineering, and administrative activities in one building.

• • •

CLEMSON, S. C.—At the new Broadus Earle Chemical Engineering building to be built here, air conditioning, heating, and plumbing will be installed by Poe Piping & Heating Co., of Greenville, in its capacity as a subcontractor on the project.

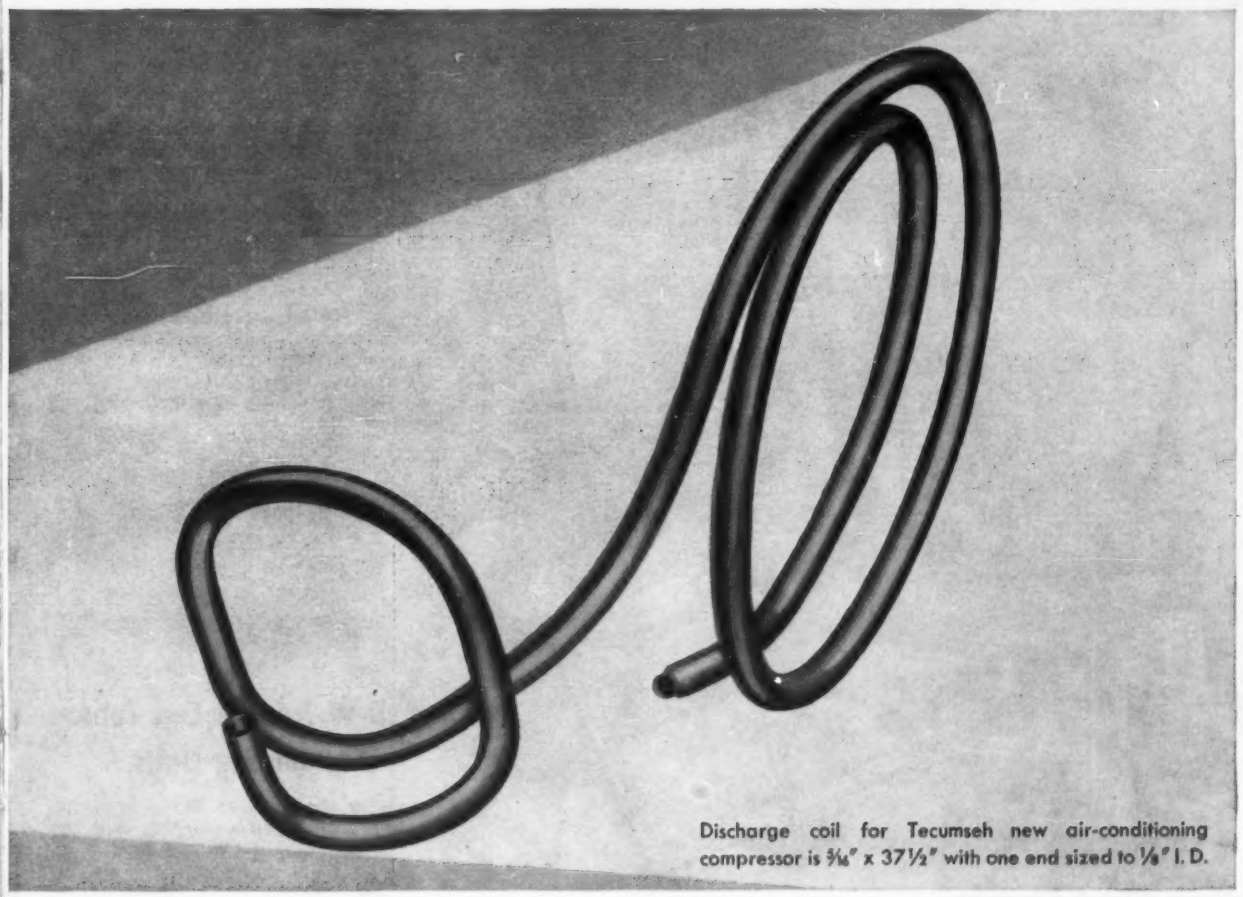
The Spartanburg firm of Lockwood Greene Engineers, Inc., is architect-engineer for the multi-storied building.

• • •

ST. PAUL—A new adhesive manufacturing plant to be erected in Fairfax, Kan. by the H. B. Fuller Co., with general offices here, will include 2,333 sq. ft. of air conditioned office space.

• • •

PORTLAND, Ore. — Oregon Transfer Co.'s new $750,000 warehouse and office building at 3232 NW Industrial St. includes 10,000 sq. ft. of area for special temperature and humidity controlled storage.



Discharge coil for Tecumseh new air-conditioning compressor is 5/16" x 37 1/2" with one end sized to 1/8" I. D.

Bundyweld parts always meet specifications

Bending steel tubing into complex shapes is a Bundy® specialty. That's why Tecumseh came to us for a discharge tube in a new air-conditioning compressor. Bundy specialists fabricated the coil (shown above) to such tight tolerances that it was able to clear both inner casing and outer shell. Here's why you should bring your tubing problems to Bundy, too:

The safety standard of the refrigeration industry. Double-walled from a single strip for extra strength, every inch of Bundyweld® is tested to assure you of years of leakproof performance.

Expert fabrication. Skilled technicians use Bundy developed fixtures and machines to mass-fabricate parts by the millions . . . each to closest tolerances.

Free design service. Our engineers will assist you at any stage in the development of your product. They'll help you design tubing parts for lowest unit cost . . . without compromising engineering standards.

It will pay you to check *first* with Bundy, the largest producer of steel tubing for the refrigeration industry. Write, wire, or call us today!

BUNDY TUBING COMPANY • DETROIT 14, MICH. • WINCHESTER, KY. • HOMETOWN, PA.

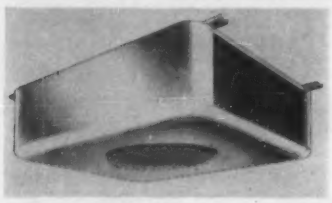
WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, BRAZIL, ENGLAND, FRANCE, GERMANY, AND ITALY

There's no real substitute for

BUNDYWELD® TUBING

Bundyweld and Bundy specialty tubings are sold through distributors in principal cities

D-H Redesigns, Streamlines 'Spasaver'



● Its newly-redesigned and improved "Spasaver" line of high temperature unit coolers (for over 34° F. applications) is now available to domestic and foreign markets, according to Drayer-Hanson, Div. of National-U. S. Radiator Corp., 3301 Medford St., Los Angeles 63.

The nine-model series "benefits from added compacting and streamlining of all-aluminum cabinet," it was stated.

"Innovations also include extra-large access door—allowing expansion valve to be installed and serviced with ease; chrome-plated fan guard with added protective features; rust-free aluminum housing, with snow-white baked enamel finish; improved hangar mountings; motor mount area, made more rigid and vibration free."

Another key modification cited is total rivenut and machine-screw-with-nut construction, according to the manufacturer.

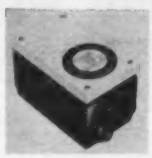
The series (S-395 through S-2405) is ranged from 730 to 36,000 fan c.f.m.

Fans are balanced, aluminum propeller type; coil, ⅝ in. o.d. copper tubes, with aluminum fin spacing, eight to the inch. Slow speed motor, completely oilless, is provided with built-in thermal overload protection, according to the manufacturer.

More details on the products described on this page may be obtained by writing the manufacturer at the address given in each story.

Float Controls Pump That Primes Itself

● A new self-priming condensate pump for use with dehumidifiers and air conditioning and refrigeration equipment was announced recently by March Mfg. Co., Dept. AHRN, 8015 N. Lawndale Ave., Skokie, Ill.



The pump is float controlled for automatic operation. Water level alone turns it on or off. With bottom inlet to pump down low, it removes all water from condensate pan.

Molded of high impact colored plastic, it measures 3⅜ in. wide, 4 in. high, and 6¾ in. long.

Pump will handle vertical lifts over 9 ft. and horizontal runs up to 300 ft. through use of ¼ in. plastic or copper tubing or hose.

It will be distributed through wholesalers, OEM manufacturers, and chain stores.

When Charge Is Full, Sight Glass Says So

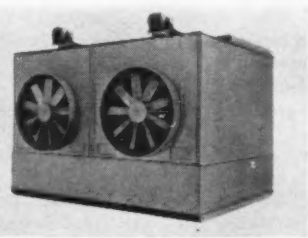
● A new "Line-Flo" refrigeration sight glass has been put on the market by Ansul Chemical Co., Dept. AH&RN, Marinette, Wis.

The sight glass features an ingenious use of light refraction, according to the company. The word "Full" is printed on the bottom port of the glass and is plainly visible only when the refrigerant is at full charge. When the level is low, the word is blurred beyond recognition, it was explained.

The Line-Flo "is sealed by brass-to-glass fusion which eliminates the threat of leaking," the company said. "Brass-to-glass fusion is accomplished by heating the brass and inserting the 'eye.' When cool, the metal contracts and squeezes the glass tightly—forcing it into the pores of the brass.

There are no gaskets, joints, or solder anywhere in the sight glass."

The sight glass is available with male-male or male-female connections in standard sizes from ¼ to ½ in. A ⅝ in. size is available only in male-male connections, according to the manufacturer.

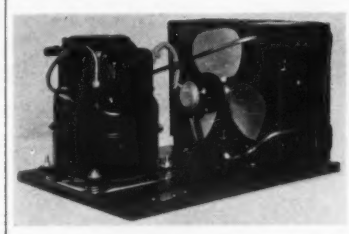


Marley Ups Aquatower Capacity to 120 Tons

● With the addition of three new models, The Marley Co., Dept. AH&RN, 222 West Gregory Blvd., Kansas City 14, Mo., has extended the capacity of its packaged "Aquatower" line to 120 tons.

The new models are two-fan units with divided hot water basin and dual cooling chambers mounted on a "common" cold water collecting basin. The two-fan design permits single-cell operation if desired "providing broad flexibility of operation and very close control of cold water temperatures," the company pointed out.

"The increased capacities available with the two-fan Aquatowers make them ideally suited for many industrial process water cooling applications in the 250 to 400 g.p.m. range."



B-W Adds 3 Cap Tube Condensing Units

● Expansion of its line of capillary tube-type condensing units by the release of two new models in the ¾-hp. size and one model in the 1-hp. size, was announced by the Evansville Div., Bendix-Westinghouse Automotive Air Brake Co., Dept. AH&RN, 950 East Virginia St., Evansville 11, Ind.

These units, designated as models BCL75T, BCH75T, and BCH-100T, are all air cooled and designed to be used with Refrigerant-12.

They are recommended for beverage cooler, large freezer, and through-the-wall walk-in or reach-in cooler applications.

The same high torque motors employed in the companion receiver type models are used in the new units.

Looking for a Business to Buy . . . ?

Check the Business Opportunities Section in the classified advertising columns.

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An impatient customer. A hot job. A control seldom found. Your Ranco Wholesaler can help you in a hurry. Ranco's unique Speed-Up Factory Order Service on wholesaler short order form for catalog controls enables him to give you the fastest delivery in the industry on the finest controls in the world.

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Ranco's line of replacement controls for nearly 5,000 distinct applications far exceeds that of any other manufacturer. And additional models are constantly being added to that line. Each control is listed—by specific application—in the Ranco Replacement Reference (No. 1660) on sale at your Ranco Wholesaler's *(Not available from factory).* Why not take advantage of Ranco's superior service now? Use your Ranco Replacement Reference to choose the quality Ranco Control that's designed for the job. Depend on your Ranco Wholesaler to get you the right control *when you need it.*

RANCO CONTROLS

Ranco® INCORPORATED
COLUMBUS 1, OHIO
World's Largest Manufacturer of Refrigeration Controls

Predicts Cooling Pumped Into Home As Utilities Are

SYRACUSE, N. Y.—Air conditioning will be pumped into homes within the next decade. Chilled and warm water for maintaining comfortable year-round conditions will be supplied from a central source like other utilities.

This was the prediction of Charles V. Fenn, Carrier Corp. vice president. Electronic sensing devices will regulate the volume of hot and cold water in radiation panels, maintaining desired temperature and humidity settings for each room, he said.

Using such a system in "the house of tomorrow," the individual home furnace, cooling and dehumidifying apparatus, air ducts, and hot water heater could be eliminated, Fenn pointed out.

Diffuser grilles, radiators, convectors, or any form of in-the-space air handling unit would also be unnecessary, allowing more living area and aiding interior decorative schemes, he noted.

All residential services could be supplied through underground pipes and wires from an attractive power plant, Fenn said.

Bryant Boosts Home A. C. Unit Production

TYLER, Texas — A substantial increase in unit production of residential air conditioners, plus the design of a new model, is scheduled for the Bryant Mfg. Co. plant here during 1959.

Top officials of the firm headed by President Samuel F. Shawhan, conferred in Tyler recently on the proposed production schedules and designs. Shawhan said the company anticipates a substantial growth in the retail air conditioning business in years to come.

Adult Classes Start

DETROIT—Registration and classes for 10 evening courses in refrigeration and air conditioning at Cass Technical High school here will begin Jan. 5, 1959, the school has announced.

Classes will meet one night a week for three hours beginning at 6 or 6:30 p.m.

Handy Tube Bender

Smoothly Bends any pipe or Tubing 3/8"-1 1/8" O.D.

• Just a twist of the wrist assures perfect, even bends — right angle, any angle, U and offset. Save enough on ONE job to pay for your HANDY BENDER.

See your supply house—or write for free folder today.

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What's In Line for '59

22% Rise In Year-Round Air Conditioning—Norris

MARSHALLTOWN, Iowa—A 22% increase in 1959 in installation of year-round residential air conditioning systems over 1958 is expected by the industry, reports John W. Norris, president of Lennox Industries, Inc.

This would put the unit figure for such installations in 1959 between 150,000 and 175,000, depending upon what is accepted as the 1958 figure.

Of this projected increase, Norris sees a 30% increase in installations in new homes, and 10% in the 1958 rate in conversion to year-round air conditioning in existing homes. He cited as a basis for his prediction the fact that the general public, and especially women, are becoming increasingly aware of the many benefits of year-round central air conditioning in homes, together with mounting concern over the problem of nationwide air pollution.

"In 1958," Norris stated," housing starts were at around the 1,100,000 figure. Of this number about 75,000 new homes were equipped with year-round central air conditioning systems, and 50,000 owners of existing homes will have added cooling to their heating equipment."

(Editor's Note: Those who think that this over-all estimate of 125,000 central systems sold in 1958 is too low, could well be basing their higher estimate on the theory that installations in existing homes might be equal to, or even greater than that in new construction.)

The Lennox executive said that estimated housing starts for 1959 would be between 1,100,000 and 2,000,000, with 73% of these new homes being equipped with forced warm air heating. It is in this group that he predicts a 30% increase in year-round systems.

Turning to existing housing, Norris said that there are about 19,250,000 homes heated by forced warm air, with some half million of those homes equipped for year-round air conditioning.

Looking far ahead, Norris estimated that by 1970 new housing starts would approximate 1,750,000, which would require that the forced warm air heating industry produce about 1,277,500 heating units, together with about 300,000 central air conditioning units.

In 1970, the replacement estimate for heating units in existing homes would be about 399,000, together with addition of about 75,000 cooling units.

Cool by Oil?

NEW YORK CITY — Calvin D. MacCracken, president of Jet-Heet, Inc. of Englewood, envisions a home of the future with appliances powered by fuel oil.

At a meeting of the Oil Heat Institute of Long Island, he predicted that home oil some day would operate air conditioners, refrigerators, and clothes dryers, and be used to generate electricity and cook meals.

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These are your benefits:

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√ RUGGED CONSTRUCTION—Brass, Bronze and Stainless Steel.

√ REMOVABLE STRAINER—At inlet—Easy to clean.

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FIELD PROVEN MODELS FOR ALL THESE CAPACITIES:
FREON-12 • 1/4, 1/2 and 1 Ton
FREON-22 • 1/2, 3/4 and 1-1/2 Tons
METHYL CHLORIDE • 1/2, 1 and 2 Tons

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Report on Education

Final article in a series dealing with all levels of education and training in the air conditioning and refrigeration industry.

By Frank J. Versagi, Technical Editor

11. Summing Up

Repeatedly, as we gathered the material for this series, we were asked if the NEWS was going to crusade. Those who have followed these articles now know that we have not done so. Instead, we have taken a broad look at the various levels of education available in the cooling industry, a look which should show the student, the educator, and the industrialist how his own efforts fit in with the over-all picture.

Nevertheless, the instructor who wanted to know how his question answering technique stands up with others; the manufacturer who was worried over whether or not he could afford to make his customer/students work instead of play at factory schools; the trade school official who wondered what the industry thinks of trade schools; the student who wonders how to go about getting to be a cooling engineer—all of these people now have, in one place, material to study.

We have shown, for example, that the young man wanting to get into service can spend a few hundred dollars to get a trade education in a few months, or he can spend less than a hundred going to a public school, but take up to three years to get the training.

The aspiring engineer has seen that he can begin with a technical institute training and work up through the ranks of a company; he may pick an accredited institute so his credits are transferable to a full degree program. Or he may look for one of the very few colleges which offer a major in air conditioning and refrigeration. Then again, he can get a mechanical or electrical engineering background and back into cooling.

The journeyman, who thinks about it at all, sees that there is need for some sort of continuing education at his level.

Manufacturers who conduct factory and field schools have seen that their schools are rated very high and very low in the estimation of those who attend them. Companies can compare their teaching techniques and schoolrooms to those of others. Perhaps more important, they can evaluate their management's attitude toward training programs in general.

Part-time instructors who work at trade schools and company schools can see how their class-conducting methods compare to others, can determine whether or not they should alter some of the methods they use—on a trial basis anyway.

Educators and members of industry alike can see what each generally thinks of the other and, if they choose, can proceed to establish the contact between them which this series so obviously establishes as a first step in improving educational opportunities, up-grading available training, increasing the prestige of the industry in the eyes of the public, and increasing the number of competent technical people in the industry.

Reader response to "Report on Education" has confirmed the NEWS' evaluation of this general subject as worthy of comprehensive study and reporting.

The greatest number of letters came from individuals seeking advice on steps to take in furthering their careers in the cooling industry. Each such letter was answered personally.

Educators wrote expressing appreciation for our drawing attention to some phase of education of particular interest to them.

Manufacturers voiced praise and criticism of the NEWS' evaluation of factory schools and commented on the series in general.

Foreign readers requested information on how to set up training schools and correspondence courses in their countries.

A major industry organization has called "Report on Education" the result of "the best research we know of to date" on education in the cooling industry.

(The End)

Readers' Reactions To 'Report on Education'

Thank you very much for your valuable information in answer to my letter. I realize your time is very valuable, and I feel fortunate that you could give me some of it. I assure you I will put it to good use.

FRANK LUCIANO
Kings Point, N. Y.

We are pleased to note that you have recognized correspondence schools as an extremely valuable method in adult education.

JOHN C. VILLAUME, Vice President
International Correspondence Schools

We are extremely interested in training at all levels here at Worthington and we would like to cooperate with you in bringing out some very important facts.

J. J. DRURY,
Marketing Services Supervisor
AC&R Sales, Worthington Corp.

We have recently instituted a course in Air Conditioning and Refrigeration. Can you help us - - .

F. J. BROWN, Vocation Counselor
Liberty High School, Bethlehem, Pa.

Relative to your intent to set up a course in refrigeration and air conditioning, I would suggest that you contact the technical editor of AH&R NEWS, who has recently made a study of all types of courses throughout the country.

RALPH F. JANSEN,
Asst. Educational Director
Refrigeration Service Engineers Society

Estando interessado em frequentar um curso de refrigeration por correspondencia, em linqua espanhola (castelhano)—Is there a correspondence course in Spanish?

JAIME GOMES FERREIRA,
Portugese West Africa

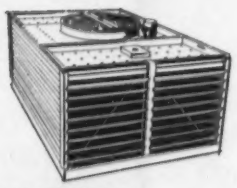
You are to be congratulated for a job well done.

JAMES M. McGRATH,
California State Polytechnic College

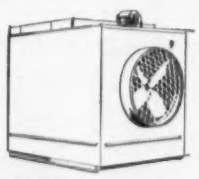
TOWERS TOWERS TOWERS

smallest to the LARGEST
Now Pritchard makes 'em all

From two tons up. That's the extent of Pritchard's line of cooling towers. Reason? Merger with Dover Mfg. Co. That added Dover's "packaged" towers to Pritchard's famous Lo Line series. Now, whatever your water cooling job, Pritchard has a tower that will exactly fit your requirements—in capacity *and* price. Write for catalog details.

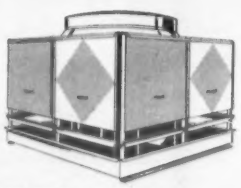


LO LINE TOWERS
Big capacity plus a low silhouette make these towers favorites for commercial air conditioning. Both wooden and fire-code models.

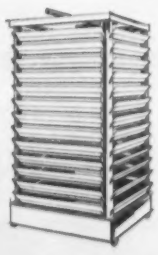


CROSS-FLOW "PACKAGED" TOWER
Hot-dipped galvanized after fabrication. Shipped assembled for fast, easy installation. Quiet, efficient.

VERTICAL TOWER
So quiet it can be used indoors. Shipped factory-assembled for fast installation.



PANELRAMIC TOWER
Exclusive colored panel feature permits tower to be used as company identification sign, or as distinctive design element of building.



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Flo, the modern chemical dehydrant, travels with the refrigerant and renders damaging moisture harmless instantly.

- **Prevents valve freeze-ups.**
- **Stops rust and corrosion — keeps metal parts and oil in top condition.**
- **Checks acid that damages internal parts.**
- **Contains no solids, caustics or acids — leaves no powder or other residue.**
- **Easily introduced into system — on high or low side.**

Over 85,000* refrigeration units successfully treated. (*Based upon average unit containing up to 8 lbs. of refrigerant)

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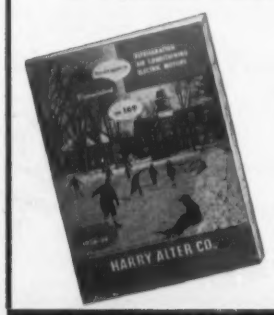
Does your customer ever say that to you? Well he can't get it wholesale from the Harry Alter Co. We sell you . . . not your customer. Our *Dependabook* is sent only to legitimate contractors and servicemen. We do not believe in back door selling.



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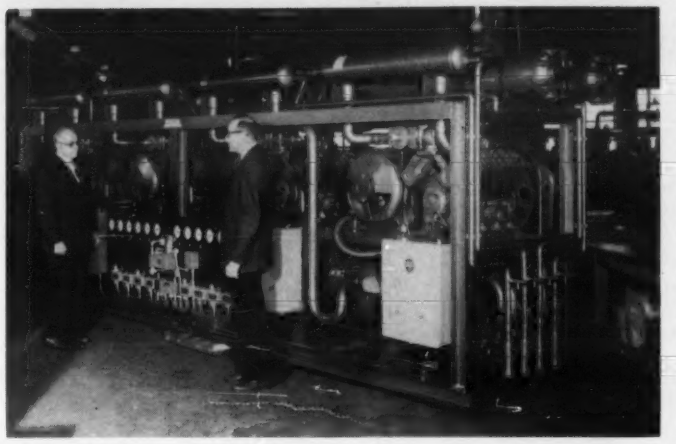
One of Schnacke's Biggest Thermatrols Will Cool Washington, D. C., Motor Hotel

EVANSVILLE, Ind.—One of the largest "Thermatrol" package liquid chiller units ever built by Schnacke, Inc. was shipped recently to Geo. C. Oliver Co., Washington, D. C. air conditioning contractor, for installation in the Americana motor hotel in the Washington suburbs.

This will be a 200-unit luxury motel with dining room for 300 people. Counts & Lawrence, consulting air conditioning engineer of Washington, designed the system.



240-HP. PACKAGE liquid chiller, claimed to be one of largest ever built by any manufacturer is examined by M. J. Barnett, Schnacke, Inc. sales engineer (l.), and J. K. Ellsworth, Schnacke vice president. It will cool the Americana Motel in suburban Washington, D. C.

'COMPLETE PACKAGE'

The Thermatrol 200-ton unit is a complete package, comprised of four 60-hp. compressors, motors, and condensers, and a 200-ton four-circuit chiller—all completely assembled, wired with starters, controls, etc., and shipped fully charged with operating charge of refrigerant, it was explained by the manufacturer.

This Quad. CE60S unit (as shown) is rated at 200 TR based on R-22 at 105° F. condensing temperature and 35° F. evaporator temperature, cooling 480 g.p.m. of water from 54° F. to 44° F., with evaporator temperature being controlled with Thermatrol capacity control valves.

There is also included in this unit a modulating water temperature controller that controls each of the (four) refrigerant liquid line solenoid valves, to allow each compressor to individually operate on a pump-down cycle, when the load demand on the units is less than 75%, 50%, or 25% of the total capacity.

"The entire unit is designed to operate in unison for full capacity being modulated in capacity by the Thermatrol suction modulation type capacity control," it was noted. "However, when the capacity is lowered to 75% one circuit will cut-out entirely, others following in sequence, so that important power savings can be realized.

"Into this method of water temperature control is incorporated a safety relay to prevent the liquid line solenoid valves from reopening immediately after a power disruption, thereby eliminating a possible liquid or oil problem when power is restored to normal.

UNITS START SEPARATELY

"The increment starters in this unit are timed in such a sequence as to prevent the total starting demand from hitting the line at the same instant. The units can only come into service one at a time.

"The unit shown is complete with non-recycling relays, crankcase heaters, and 'freeze-stat.'"

Thermatrol units have set sales records for 1958, being 300% ahead of last year—with compressor and condensing unit sales ahead over 20%, according to F. C. Schnacke, president.

Airtemp Names Fitch Director-Distribution

DAYTON—Warren Fitch has been appointed director-distribution for Chrysler Corp.'s Airtemp Div., J. B. Ogden, vice president-sales, announced.

W. Fitch

A veteran of 32 years in the sales field, Fitch had been serving as manager of Airtemp's northeast zone since April of this year. He joined Airtemp in 1947 as a representative in Atlanta.

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"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich. Only 25¢ each.

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In stock or made to your specifications.

WATSCO strainers are made of the finest hard drawn copper tubing and monel mesh. The mesh is welded by a revolutionary new welding technique. All strainers have the WATSCO warranty of quality, service and dependability.

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COMPLETE YOUR PROPOSAL WITH FINANCING ON THE

COMMERCIAL CREDIT PLAN

Most prospects need their cash reserves and usual lines of credit for current operation. Make it easier for them to sign on the dotted line by including financing arrangements. COMMERCIAL CREDIT'S Refrigeration Plan has become an essential part of the proposal of so many refrigeration and air conditioning companies.

COMMERCIAL CREDIT'S Refrigeration Plan is tested by time and experience in handling the financing for thousands of commercial installations. Let us show you how COMMERCIAL CREDIT'S experience and know-how can save you time and money . . . and help you close sales with less delay. Call the nearest COMMERCIAL CREDIT office or write COMMERCIAL CREDIT CORPORATION, 300 St. Paul Place, Baltimore 2, Md.

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SPECIAL

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When the crowds converge on Philadelphia for the 14th International Heating & Air Conditioning Exposition, Jan. 26-29, 1959 the big, special Show Issue of the NEWS will be right there with them!

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SPECIAL **SPECIAL INTEREST FOR THOSE AT HOME**

Nearly everybody in the Heating and Air Conditioning industry will be watching for this issue—because whether one is able to attend or not, one won't want to miss a single bit of news.

SPECIAL **SPECIAL SELLING OPPORTUNITY**

In this atmosphere of thoughtful readership, your product or service message will make a maximum selling impression—will help get 1959 sales off to a strong start.

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Take advantage of this outstanding selling opportunity at the same rates which apply to every issue of the NEWS.

ISSUED: January 26, 1959

LAST FORMS CLOSE: January 14, 1959

Special Issue for the INTERNATIONAL HEATING and AIR CONDITIONING EXPOSITION, January 26, 1959

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HEATING & REFRIGERATION

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Refrigeration Problems
And Their Solution
(*As Written by Paul Reed*)

Non-Condensables In the System

Nitrogen can be used for pressure-testing refrigerating systems. In fact, it is somewhat better than carbon dioxide for the purpose. Nitrogen also is available in portable size cylinders, and it too comes in ordinary commercial and "dry" grades. Only the dry nitrogen should be used.

Nitrogen does not liquefy at ordinary temperatures, but new drums of nitrogen have a pressure of between 2,200 p.s.i.g. and 2,300 p.s.i.g. at room temperatures. Therefore, a reducing valve must be used, as with CO_2.

Oxygen, also available in portable cylinders, MUST NEVER BE USED FOR TESTING. When oxygen comes in contact with the oil, an explosion occurs. There have been a number of fatal accidents in this manner.

There are other gases available in portable cylinders, acetylene, propane, butane, and similar hydrocarbon fuel gas. Since they are all highly flammable and explosive, it seems quite obvious that they cannot be used for testing.

REMOVE TEST GASES BEFORE CHARGING

If air, carbon dioxide, or nitrogen have been put into a refrigerating system for test purposes, they must be purged out after the test. Purging only will merely reduce the gas in the system to atmospheric pressure. The system will still have a great deal of air in it, and to get this remainder out, it must be pumped out.

The refrigeration compressor can, of course, be used, but this should be avoided if possible, for any dirt, or moisture in the system is pumped through the new, clean compressor.

Instead, a vacuum pump should be used, that will pump a vacuum on the system down to 29 in. of mercury vacuum or lower.

Simply purging the test air or gas down to 0° gauge and then trying to further remove it by purging it out with some of the refrigerant itself is not effective. The test gas and the refrigerant mix, and some of the test gas remains, no matter how much purging is done.

Any air, carbon dioxide, or nitrogen that is left in the system is a non-condensable and when the refrigerant is put into the system, the test gas simply adds to the refrigerant pressure and causes high head pressures and the other objectionable effects of foreign gases in a refrigerating system.

The original air in the system, and the air, carbon dioxide, or nitrogen used for testing, are the source of the original non-condensables in a refrigerating system.

AIR FROM VACUUM LEAKS OR SERVICING

Even though the system was originally free of non-condensables, they can get into the system after it is fully charged with refrigerant, and has been in operation for some time. If it is a low temperature system whose operating suction pressure all or a part of the time is into a vacuum, air will be drawn into the system if a leak has been left, or later appears, on the low pressure side of the system.

Sometimes air is allowed to get into a system by carelessness or accident when the system is being serviced.

In many, and in fact most cases, there will be moisture in the air, and the moisture will make itself evident by frozen expansion valves, etc., even before the excessive head pressure due to the air in the system is noticed; although this is not always true.

As mentioned earlier in this discussion, the non-condensables that get into a system often have moisture with them, and the moisture makes itself noticed through lack of refrigeration due to a frozen expansion valve.

'FOUL GASES'

There is still another source of non-condensables in a system. This is from gases formed by chemical decomposition of the oil or refrigerant by some abnormal condition within the system. With the "Freons" and other low pressure refrigerants, this is ordinarily a minor cause of non-condensables in the system.

Just how important a part these "foul gases" play in an ammonia system is somewhat controversial, but it is probable that what are often mistaken for "foul gases" due to chemical action inside ammonia systems, are in a large part, due to air from leaks.

There is one "foul gas" in methyl chloride systems that should be mentioned, although it has been given so much publicity for the past 10 years that it seems that everyone should be familiar with it by this time. This is the formation of very highly flammable and explosive gases, one of which is aluminum trimethyl, when methyl chloride comes into contact with aluminum. The aluminum is chemically attacked by the methyl chloride and these truly "foul" gases are formed.

They are quite dangerous, and if it is suspected that such a condition exists, the refrigerating system must be treated with the utmost respect. These gases are so flammable that they do not have to be ignited by a flame, but burst into flame by "spontaneous combustion" as soon as they come into contact with the oxygen in the atmosphere.

If you run across such a situation, do not attempt to purge off the gases. Pinch off the lines and get the unit outdoors. Purge the *liquid* out and *slowly* fill the system with water. While doing so, wear a gas mask and gloves.

In dry climates or in dry weather, or even inside heated buildings in the winter, the air may be so dry that no moisture trouble shows up. Especially with ammonia, but also with sulfur dioxide and methyl chloride, a slight amount of moisture is absorbed by the refrigerant, so that the only noticeable effect of air drawn into the system is abnormally high head pressures.

In such a situation, the moisture must be removed by a good drier filled with silica gel, activated alumina, or calcium sulphate. But, the non-condensable still remains, and possibly it may remain unnoticed.

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Guide to Stories Which Ran In the NEWS In 1958

Editor's Note: **Following is a listing of some of the stories and articles which appeared in the NEWS during 1958. This is by no means a complete summary of all articles, but rather some of the more significant stories. They are noted by the headline under which they appeared and are classified by general subject matter.**

Copies of some of the issues are still available at 40 cents for a single copy; ten or more copies, 30 cents each; 50 or more copies, 20 cents each. Please see box on page 25 for a listing of available issues.

Air Conditioning and Heating

GENERAL

Both Builder and Existing Home Owner Will Buy Quality If Properly Sold, Dealers Show. Feb. 3, p. 30.

1,971 Detroit Air Conditioning Sales In 1957 Top Every Year but 1956. Feb. 10, p. 34.

How Owners Use Air Conditioning (1) Most Set Thermostat Below 80° F. (2) Many Lower Setting When It Gets Hot Outside (3) 65% Don't Open Bedroom Windows. March 10, p. 52.

Utility Sponsored Annual 7-Week Campaigns Help to Keep Cincinnati Air Conditioning Conscious. March 10, p. 68.

Dealers Are Made, Not Born—Distributor Reveals How He Upgrades Small Dealers to Increase Their Air Conditioning Sales—and His. March 17, p. 10.

Air Floor Panel System of Air Conditioning, Heating, Ventilating Offers New Classroom Approach; Hollow Concrete Floor Carries, 'Stores' Heated, Cooled Air at Lessened Expense. March 24, p. 20.

Dealers Want Manufacturers To Do More Local Advertising—Newspapers, Personal Calls, Direct Mail, Lead In Dealer Plans to Promote Air Conditioning In '58; See Need for Institutional, Not Price, Advertising by Makers. April 7, p. 8.

Survey Shows Most Dealers Make Fair Profit on Air Conditioning Jobs or 'Pass Up' Work; Find Biggest Headache To Be 'Incompetent Installers.' April 14, p. 28.

Air Conditioning Anticipation Controls 'Crutch' Unit Termed Very Important In Thermostat; Emphasizes Difference Between Cooling, Heating Controls. April 21, p. 18.

Air Pollution 1. The Problem ('Loading' of Air With Contaminants In Industrial Areas Presents a Most 'Irritating' Condition). April 28, p. 16.

Air Pollution 2. One Solution (Research Study In Los Angeles Discloses How Proper Filtering Cuts Irritating Effects of Smog Condition). April 28, p. 19.

To Do Job Right Watch All Heat Gain Sources When Calculating Cooling Loads—Florida School Points Out Heat Producers You Might Overlook. May 19, p. 18.

Housewives Say We Like: Comfortable Heat, Cleanliness. We Don't Like: Too Hot Heat, Dry Air. June 2, p. 16.

31 Point Heating Check List—Each Man In Crew Must Sign Form Designed to Assure Firm and Homeowner That All Details Have Been Checked Out. June 2, p. 17.

Gas Cooling Drive Could Benefit All. June 9, p. 1.

Gas Industry Sees Air Conditioning as 'Greatest Hope' and 'Greatest Threat.' June 16, p. 32.

Gas Utilities Sharpen Sales Swords for Big Whack at Air Conditioning. June 23, p. 6.

World Wide Cooling Market Awaits U.S. Wooing. Aug. 4, p. 1.

How Builder Can Merchandise Heating. Sept. 15, p. 10.

INDUSTRIAL

Offshore Oil Drilling Barge Finds High Velocity Conditioning Economical. March 24, p. 16.

A Look at Future Factory Comfort Conditioning (1) Sees More Concern with 'Acceptable' Humidity at Lower Cost and Tonnage. May 5, p. 20.

A Look at Future Factory Comfort Conditioning (2) Sees More Concern with 'Acceptable' Humidity at Lower Cost and Tonnage. May 12, p. 42.

Pinpoint Humidity Control Protects Stocks from Rusting In Metal Working Plant. June 23, p. 8.

'King-Sized' Refrigeration Cycle To Cool Some Phases of Rocketdyne's Missile Testing Program. June 30, p. 9.

Missile Air Conditioning—How Rugged, Versatile Equipment Keeps Control Systems and Men Who Operate Them Functioning Smoothly. July 14, p. 8.

3 High Altitude Test Chambers Will Test Components for Convair's B-58 Hustler. July 21, p. 8.

'Clean Room' Controls Conditions Beyond Surgical Requirements for Missile Output. Aug. 4, p. 56.

Meter Shop Cooling Cuts Waiting Periods. Aug. 11, p. 11.

Air Conditioning, Refrigeration Play Varied Roles In Production of New F-27 Jet Transport. Sept. 8, p. 16.

Cutting Cooling Load 25% by Insulating Wins Clothing Plant Air Conditioning Contract. Sept. 15, p. 9.

Moisture Travel Through Slab Structures Poses Serious Air Conditioning Problem. Nov. 3, p. 9.

Cooling Giant Magnetic Field—100-Ton Chiller Supplies Water. Nov. 17, p. 11.

Improper Installation of Pipe Insulation Can Cause Serious Condensation Problems. Dec. 8, p. 6.

Air Conditioning Regulates Temperature, Humidity In General Mills Laboratory. Dec. 15, p. 20.

COMMERCIAL

Honeycombed Steel Decks Carry Air from 5 Medium Velocity Systems to Perimeter Sound Boxes to Air Condition Big Building. April 14, p. 42.

Believed To Be Largest In Existing Building: Installs Complete Air Conditioning—Including Smog Control—In Large West Coast Building To Cool 1,000 Zones. April 28, p. 24.

Sees Commercial, Industrial Market of 3½ Million Units—DuPont Survey Turns Up Big 'Ready-To-Buy' Segment, Reveals Inadequate Selling Job. May 5, p. 1.

Natural Gas System Conditions Restaurant at Low Operating Cost. May 12, p. 12.

Combine Central, Packaged Systems to Air Condition Courts Building: Uses Existing Duct Risers, Double-Deflection Grilles, Holds Cost to $300,000. May 12, p. 48.

Trade Acceptance Notes Aid Payments, 'Make Businessmen Out of Dealers.' May 12, p. 51.

For 3,450-Ton Central System Insulation Cuts Heat Gain, Protects from Corrosion, Halts Soil Chemical, Moisture Penetration of Buried Water Piping. May 19, p. 23.

Move 4 Tons of Outside Air Into Store Every Minute To Air Condition 125,000 Sq. Ft.; Dampered Plenum Rooms Control Air to 24 Sprawled Out Zones. May 26, p. 18.

222 Package Units Give Tenants Individual Space Control In Huge Home-furnishings Mart. June 2, p. 9.

Air Conditioning Helps Maintain Maximum Accuracy at Army Map Service Field Office. June 9, p. 12.

'Data Center' Allows 1 Man to Control Climate In All Public Rooms of Queen Elizabeth Hotel. June 9, p. 23.

Air Conditioned School Designed To Be Functional In Year 2,000; Cool 3 Major Areas. June 16, p. 6.

Overcome Space Problem To Cool Deluxe Yacht. June 30, p. 8.

Basement Air Conditioning Helps Pittsburgh's Syria Mosque To Book Exhibitions Year-Round. July 14, p. 5.

How Air Conditioning Saved Jamestown Festival. July 14, p. 26.

Two-Volume Control: An Approach to Problem of Regulating Furnace Air Flow When Cooling Is Added. July 21, p. 26.

H-Shaped New York Central Building Getting Year-Round Central Air Conditioning System. July 28, p. 11.

Stratos Develops Lightweight Air Conditioner for Guided Missile Ground Support Systems. July 28, p. 23.

$125 Million Exchange Park Will Have 13,000-Ton Air Conditioning System. Aug. 11, p. 21.

Chiller System Replaces Window Units In New Wing of Kalamazoo Hotel. Aug. 18, p. 5.

1,100 In-Wall Units Cool 520 Suites In Philadelphia Apartment House. Aug. 25, p. 8.

Widely Varying Heat Load, 2-Ft. Thick Walls Posed Problems In Cooling Houston Building. Sept. 1, p. 5.

Commercial, Industrial Air Conditioning Survey Defines Potential Market (1) The Market. Sept. 1, p. 6.

Commercial, Industrial Air Conditioning Survey Defines Potential Market (2) Facts About the Installation. Sept. 8, p. 22.

'Aluminum Showcase'—880 Sun Control Louvers Will Reduce Load In Air Conditioned Reynolds Metals Building. Sept. 15, p. 16.

Commercial, Industrial Air Conditioning Survey Defines Potential Market (3) Purchasing Patterns. Sept. 15, p. 20.

9-Ft. Space Frame Between First, Second Floor Houses Air Conditioning, Service Facilities. Sept. 22, p. 6.

Commercial, Industrial Air Conditioning Survey Defines Potential Market (4) Owners' Opinions and Reasons for Installations. Sept. 22, p. 16.

Air Conditioning Outlets Are 100 Ft. Up To Use Natural Air Circulation System Ducts. Sept. 29, p. 5.

Commercial, Industrial Air Conditioning Survey Defines Potential Market (5) Non-Owners' Views, Plans for Purchase. Sept. 29, p. 16.

Control Tower Ductwork to Follow Round Contour of Building. Oct. 6, p. 5.

70% of Commercial, Industrial Establishments Not Air Conditioned, Petrone Reminds Dealers. Oct. 6, p. 11.

World's Largest Retail Food Distribution Center Uses 258 Tons of Air Conditioning. Nov. 3, p. 10.

Cooling the Aluminum and Glass Structure—Blanket of Conditioned Air Is Provided Between Large Glass Exposure and Manor Building Occupants. Nov. 10, p. 35.

Supermarkets Are Biggest Cooling Customer In Retail Field—Petrone. Dec. 22, p. 6.

RESIDENTIAL

Knoxville Survey—Home Cooling Jobs Jump 15% in 1957. Jan. 20, p. 1.

'Heating Contractor's Role Important' —House Orientation, Thermostat Placement, Zone Control, Adequate Insulation Seen as Needed To Halve Heating Costs. Jan. 20, p. 12.

How Much Filter Should Air Conditioned Home Have? Four Engineers Give Views. Jan. 20, p. 16.

How Much Filter Should Air Conditioned Home Have? Faster Velocities—More Changes, Cut Conditioner Efficiency—Nutting; 300 C.f.m. Rule Needed To Assure Satisfactory Operation—Miles. Feb. 10, p. 24.

'3 Wiring'—Experimental System Provides 115 and 240-Volt Current In Any Room In House for 'Least Possible Cost.' March 3, p. 14.

Cincinnati Home Cooling Sales Rise 10% in '57. March 10, p. 1.

Pitfalls to Avoid In Selecting Air or Water-Cooled Home Air Conditioners. March 10, p. 72.

Why Air-Cooled Unit Made Phenomenal Progress In Residential In 5 Years (1) March 10, p. 82.

Why Air-Cooled Unit Made Phenomenal Progress In Residential In 5 Years (2). March 17, p. 16.

Women Tell All—'Why I Like Home Conditioning.' April 7, p. 1.

How Residential Controls Work: Basic Principles Outlined To Emphasize Importance of Proper Hookup for Successful Operation. April 7, p. 26.

Current of Low Velocity Air Drops Off at Edge of Ticket Window To Keep Cooling In Office—Air Conditioning Needed for Health of Workers. April 14, p. 8.

In 1957 Ft. Worth Home Cooling Sales Hit 1,437; Believe Drop Due To Curtailed Building. April 28, p. 1.

Air Conditioning of Capehart Military Housing Offers Big Residential Market for Industry; Problems In Getting Projects Approved, However, Spotlight Need for Improving Public Acceptance. May 5, p. 14.

Specific, Colorful Reasons 'Why I Like Air Conditioning' Expressed by Women at Roundtable: (1) Cite Indoor Charcoal Broiling, No Dirt, Plants Grow Better, Fresh Skin. May 5, p. 18.

Ladies Complain of Some Problems In Home Air Conditioning (2) Air Movement, Selecting Comfortable Temperatures, Noise Bother Them. May 12, p. 10.

Adjusting, Balancing Year-Round System: (1) Sees Unsatisfactory Air Conditioning or Heating Job When System Is Designed and Final Steps Are Omitted. May 26, p. 20.

Difficulties Encountered When Air Requirements for Add-on Cooling Are Much Different Than for Heating —What Happens to Home Heating System When Cooling Coil Is Added. May 26, p. 34.

Memphis Residential Sales Down; Profitable Jobs 'Hard To Find.' June 2, p. 1.

Adjusting, Balancing Year-Round System (2) Sees Unsatisfactory Air Conditioning or Heating Installations Endangering Future of Industry. June 2, p. 13.

Numbered and Packaged Prefab Ducts, Fittings Speed Installation In Projects, Cut Costs. June 9, p. 20.

Duct and Fitting Resistance (1). June 9, p. 24.

Duct and Fitting Resistance (2). June 16, p. 35.

Duct and Fitting Resistance (3). June 23, p. 14.

Duct and Fitting Resistance (4). June 30, p. 15.

8-Step Sales Plan: Gas Utility Stresses Need for Residential Cooling Salesmen To Work Only on Prospects (Those Willing and Able To Buy). July 7, p. 6.

Distributor's 8-Week School Gives Heating Men Actual Practice on Refrigerating Systems. July 14, p. 13.

Distributor Campaign Urges Public To Contact Qualified Dealer When Planning Cooling. July 14, p. 18.

Residential Air Conditioning Contractor Finds Built-In Kitchens To Be Ideal Volume Booster. July 28, p. 6.

Careful Engineering and Good Merchandising Sell Residential Systems for Alabama Firm. July 28, p. 21.

Sell Comfort Package (Heating, Cooling, Insulation) To Multiply Sales and Profits, Contractor Advises. Aug. 11, p. 10.

Kalamazoo Starts First 'Silver Shield' Program. Aug. 11, p. 22.

How Maximum Insulation Cuts Cooling Costs. Oct. 6, p. 6.

Research on Year-Round Air Conditioning In Multi-Level House Started by NAHACA. Oct. 13, p. 16.

3 Systems Air Condition $300,000 Mansion To Avoid Complicated Zone Control Set-Up. Oct. 27, p. 8.

Too Few Contractors Seek Home Market. Nov. 10, p. 1.

Nation's Women Hunger for More Information on Air Conditioning, Are Skeptical of Many Claims. Nov. 10, p. 9.

What Industry Leaders Think Is Ahead for Residential. Nov. 10, p. 12.

What Happened to Residential Air Conditioning In Wichita: Home Cooling Sales Off; Gains Noted In Heating, Commercial Applications. Nov. 10, p. 36.

Knoxville Residential Sales Rise: Heat Pump Demand Is Dominant Factor In '58. Nov. 10, p. 40.

What Happened to Residential Air Conditioning In Cincinnati In 1958. Nov. 24, p. 16.

Dealer Insists on Adequate Insulation Before Installing System In Residence. Dec. 1, p. 6.

80% of Buyers Specify Air Conditioning In Moderate Priced Home Development. Dec. 8, p. 16.

The Dealers Speak Up (1)—Offer Suggestions, Viewpoints on Industry's Future. Dec. 8, p. 26.

The Dealers Speak Up (2)—Offer Ideas on Policies, Methods, Problems. Dec. 15, p. 18.

NWAHACA Studies 'Silver Shield.' Dec. 15, p. 1.

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Auto Air Conditioning Sales Still Soaring—Hot In '57, Hotter In '58. April 21, p. 1.

Sutton Driving Tests Reveal Auto Conditioning Benefits to Driver's Health, Alertness. April 21, p. 1.

Integrated, Specialized Assembly-Line Tests, Charges Auto Cooling Systems. April 21, p. 32.

Key To Auto Air Conditioning Sales: Clean Shop, Keeping Delivery Time Promises, Giving Service Customer Preference over New Installations. April 21, p. 33.

Getting the Most Out of Auto Cooling—Loveley Suggests 5 Procedures That Will Help Owner Get Maximum Comfort. April 21, p. 35.

Car Cooling Sales Grow Despite Auto Output Decline. Aug. 4, p. 1.

Rapid Pull Down Cited as Major Problem In Car Air Conditioning at ASRE Session. Aug. 11, p. 8.

Truckers Learn About Refrigeration In Technical Conferences. Sept. 15, p. 14.

ROOM UNITS

Sells Room Air Conditioners by Sending Salesmen with Installers; Taking Free Filters to Last Year's Customers; Using Season-End Ad Campaign. March 10, p. 30.

Pre-Season Promotions Pay Off — MIMAS, 'Operation 95; Earlybird' Drives Get Air Conditioner Sales Off to Early Start. March 31, p. 6.

Room Unit B.t.u.h. Ratings. April 14, p. 1.

No More Window Washing Problems: Dealer Offers Aluminum Glass Room Unit 'Jiffy Slider' To Provide 'More Light; More View, Weather Protection.' May 10, p. 12.

1958 Room Air Conditioner Ratings (REVISED)—Second ARI Edition Includes New, Revised B.t.u.h. Ratings. June 2, p. 10.

Nominal Horsepower Ratings. July 7, p. 5.

Dealers Act Fast, Counteract Story that Air Conditioner Gassed Family. July 28, p. 1.

Rental Plan Triples Room Air Conditioner Sales and Assures Profitable Transactions. Aug. 18, p. 9.

'Aluminum-Tube Coils' of Even Minimum Design Found Suitable for Room Unit Evaporator Service. Sept. 8, p. 7.

Utility Ad Advises Public on How To Select an Air Conditioner. Sept. 15, p. 13.

HEAT PUMPS

Advantages of Using Solar Energy with Heat Pump for More Efficiency Explored In ASHAE Session. Feb. 24, p. 12.

Sees Increasing Use of Electricity Booming Heat Pump Installations; 'Could Account for 65% of Market by 1965!' Calls Water-to-Air Type Most Efficient. Feb. 24, p. 13.

Dramatizing Heat Pumps Helps Firm Push Conditioning Sales Year-Round. March 10, p. 29.

Although It's Economical, Practical, Now Heat Pump Growth Linked to Public Acceptance of Summer Cooling of Homes as Necessity. March 24, p. 8.

In Sprawling Northwest Home Four Heat Pumps Control Temperature — One Heats Water for Indoor Swimming Pool. April 28, p. 39.

Hot Refrigerant-12 To Keep Officials, Press Warm at Olympic Ice Rink—Direct Heat Pump Use Keyed to Control System. May 12, p. 46.

Laboratory In New York State Air Conditioned Year-Round by Heat Pumps; Automatically Controlled Heating, Cooling Needs No Supplementary Heat. May 26, p. 8.

Victory Field Press Box Gets Heat Pump. Sept. 15, p. 19.

Heat Pump Is Here, Giordano Tells National Power Use Conference. Dec. 1, p. 6.

Heat Pump Quandary — Too Many Dealers, Too Little Know-How? Dec. 22, p. 1.

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Refrigeration Unit, Rushed to Job by Air, Lowers Storage Room Temperature Fast; Saves Rose Bushes. Jan. 6, p. 13.

Financing the Store of Tomorrow (Part I)—How Far Can Commercial Refrigeration Dealer Stretch the One-Third Rule and Remain Solvent Today? Jan. 27, p. 16.

Financing the Store of Tomorrow (Part II)—How Commercial Refrigeration Dealer Can Avoid Trouble In Selling Store Equipment on Time. Feb. 3, p. 20.

Why Sell Through Distributor? Distributor Tells Commercial Refrigeration Mfrs. 'You Dominate Local Level Market, Get Local Service, Engineering.' Feb. 17, p. 15.

Reach-In Uses Air Curtain as Case Door. Feb. 24, p. 1.

What a Commercial Refrigeration Distributor Insists on Doing for Customer To Guarantee Good Service. Feb. 24, p. 24.

Low Temperature, Minimum Loading Delay Urged for Frozen Food. March 3, p. 1.

How Distributor Can Put 'Life' Into Commercial Units: Create Need or Demand In Area by Displays, Direct Mail, Ads, Working with Food Groups; Have Trained Salesmen, Give Client Something Extra. March 3, p. 17.

Refrigeration a Pawn In 'Giveaway' Row? FTC Charges $47,000,000 Worth of Cases Out. March 24, p. 1.

Offering Mechanical Service on Refrigeration Units 'Thorny, Expensive,' Especially on Someone Else's. March 31, p. 20.

Hearing Charges FTC Fails To Show How Mfrs. Furnishing Ice Cream Cabinets 'Hampers or Restrains' Refrigeration Dealers. April 7, p. 32.

Furnishing Cabinets Enables Suppliers To Make Sure Each Dealer Has Appropriate Number, Size, Cut Cost. April 14, p. 38.

Self-Service Meat Dept.: Visible Packaging Gives Customers Contact with Butcher, Ups Fresh Meat Sales. April 28, p. 26.

Hospital Provides 'Optimum Nutrition at Minimum Expense' In Refrigerated Space. May 26, p. 26.

Mounts Air-Cooled Condensers Inside and Uses Warm Air To Heat Back Rooms of Supermarket. May 26, p. 29.

Ice Machine Feeds Produce Dept. Through Wall: Less Customer Interference, Labor Savings Cited as Major Advantages. July 14, p. 21.

Cold Curtain 'Fail Out' Foils Super's Unusual Dairy Display Idea. July 21, p. 1.

Detroit Commercial Sales—881 Condensing Units Installed During 1957; Top 10 Contractors Account for More than Half of Jobs. July 21, p. 16.

NCRSA Service Dept. Survey Shows 29% Made Profit, 21% Broke Even on Average Mark-up of 53% In '57. Aug. 25, p. 16.

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Blast Freezer Allows Small Food Packer To Process Chickens at -30° F. Sept. 22, p. 20.

Refrigerated Tunnel Highlights Newest King Sooper-Self-Service Meat Dept. Sept. 22, p. 22.

Specially Designed Equipment Accomplishes Fast Freezing, Storing of Tiny Brine Shrimp. Sept. 22, p. 23.

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Heating Men Seek Combined Board To End 'Discrimination' In Cooling Licenses, Dec. 1, p. 1.
Detroit Area Reciprocal Council To Study Code, Dec. 1, p. 1.
Industry Asks Properly Qualified 'Heating, Ventilating, and Air Conditioning' Inspectors to Enforce New San Francisco Code, Dec. 1, p. 13.

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Thermoelectric Refrigeration—Predict Use for Auto Air Conditioning, Multiple Stage Thermocouples for Ultra Low Temperatures, July 14, p. 14.
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(Part 2)—Selection and Installation, Oct. 27, p. 22.
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Available Issues

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Available Reprints

"Introduction to Thermoelectric Refrigeration," by Frank J. Versagi—50¢.

"1958 Air Conditioning Specifications Guide"—Special reduced price 50¢.

"Copper Tubing," by Frank J. Versagi—50¢.

How a Consulting Engineer Air Conditioned His Own Home, Joe H. English, Nov. 10, p. 38.
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Air Distribution Requirements In Year-Round Air Conditioning

Part 3—Fundamentals of Equipment

By Frank D. Klein, Chief Engineer, Governair Corp.

The effect of DISCHARGE TEMPERATURE AND PRESSURE is important. An increase in discharge pressure inevitably leads to a reduction in cooling capacity of the compressor; furthermore an increase in horsepower-per-ton occurs. On the other hand a decrease in discharge pressure and temperature is still more serious.

Henri Soumerai in his discussion on Compression Refrigeration cites a typical cross reference of these effects, such as that which follows.

Assume that the compressor under investigation is being operated at a Discharge Temperature of 115° F., and we wish to find at -10° F. evaporating temperature:

1. the refrigerating capacity,
2. the horsepower being consumed,

the solution, according to Soumerai would work out like this:

1. C.f.m./Ton Refrigeration: = 9.5 (from the performance chart for R-12 Simple Saturation Cycle) Fig. 54.

2. With 8.98 C.f.m. of refrigerant vapor being handled;

$$\text{Tons of Refrigeration} = \frac{8.98}{9.50}$$

or 0.945 TR.

3. Tons/hp./c.f.m.: 0.202 (from the performance chart for R-12 Simple Saturation Cycle) Fig. 54.

thus:

Thp. = 0.020 x 8.98 = 1.82.

By referring to Fig. 53 (which has been reproduced here through the courtesy of ASRE) it will be noted that an increase in discharge pressure of 20 p.s.i., which corresponds to an increase in 10° F. in condensing temperature, reduces the capacity from its original tonnage.

In assessing the effect of Discharge Temperature refer also to Fig. 49 the Mollier Chart.

Rather than continue on in detail further one has merely to use either Fig. 49 or obtain and use the typical Mollier Chart for any refrigerant concerned and the rest of the investigation as to the function or malfunction of the compressor can be carried out, looking for the readings revealed based on:

4. Net Refrigerating Effect
5. Superheating of the Suction Vapor
6. Heat of Compression
7. Heat of Rejection and Removed In the Condenser
8. Volume of Vapor
9. Calculations for Refrigerant circulated or required to be circulated. In all investigations it must be remembered that even the best compressor will indicate only a maximum of 80% Volumetric Efficiency. Further DISPLACEMENT is an important factor to remember at the very start in order to properly evaluate any investigation.

For instance, if a compressor investigated must pump 39.16 lbs. of R-12 per minute in order to accomplish the purpose, and further, upon entering the compressor the R-12 at 5° F. vapor is superheated to 65° F. which corresponds to a volume of 1.67 cu. ft./lb., the compressor then must move 65.4 cu. ft./minute—39.16 x 1.67.

If the compressor was 100% efficient and could completely fill and exhaust its cylinders on each stroke, it would need to have a displacement of only 65.4 cu. ft./min. However, assuming the compressor cannot be better than 80% efficient on the average, as a result if we take 65.4 and divide it by the 80% factor the compressor then must have a displacement of 81.7 cu. ft./min. Thus in any investigation the total volume of the cylinders must be considered in relation to the speed of the compressor, as well as the number of cylinders.

In Fig. 53, for those not clear on "COMPRESSION RATIO," this function is the ratio of Suction Pressure to Discharge Pressure. When using this function it must always for practical purposes and comparison be expressed in ABSOLUTE PRESSURE.

For a better understanding as to WHY a compressor on the average can be but 80% efficient, and WHAT the difference between 100% is attributed to, consider the following.

Discharge Valve design, as well as function, in all compressors is far from perfect. Usually the higher the discharge pressure the greater the possibility of the discharge gas, ordinarily supposed to be in the condenser or receiver, seeping or be actually sucked back into the compressor on the closing of the discharge valve.

The entire relation is based on close coordination between the discharge valve opening and closing as the suction valve opens and closes, thus the vapor that should enter into the cycle is reduced. The compressed vapor leaks by the piston and finds its way into the crankcase as well as the suction line.

The space at the top of the cylinder, depending on the cylinder design, is usually an excess that contributes to some of this loss. Actual space between cylinder top and the piston top, areas around and to the discharge valve, areas around and to the suction valve, etc., all make up more or less waste space which is most generally referred to as the clearance area, or "clearance volume."

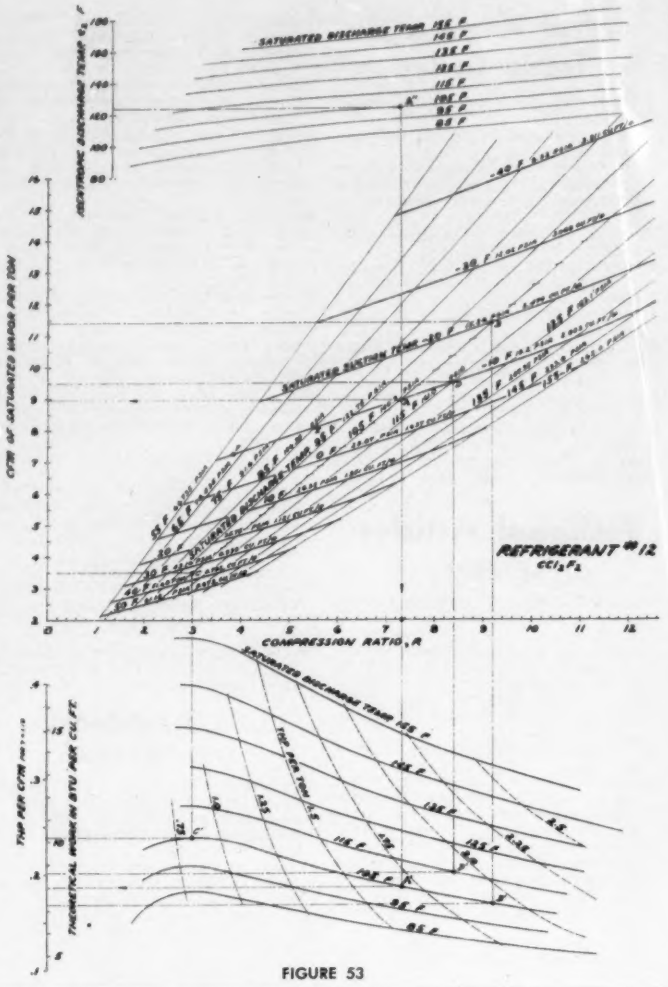

FIGURE 53

Of all these, the area between the top of the piston and the top of the cylinder, at its closest "up" position, is a vital consideration. There must, of course, be some clearance in order to allow the slight carryover of oil from the crankcase to return as well as any liquid refrigerant, notwithstanding tolerance for clearance between the two members. However, when this so-called clearance becomes excessive it contributes considerably to inefficiency on the stroke in compression.

Gas which is left behind after the piston has accomplished its greatest stroke becomes trapped at the high pressure required during the cycle, or accomplished during the cycle; this means it is at full discharge pressure.

As the cycle proceeds and the piston starts down again for the suction stroke, the high pressure gas left behind starts to expand, and until the pressure of this gas falls below that of the suction pressure, no suction gas can flow into the suction cycle. Even if the difference is only slight in favor of the suction gas, velocity of flow in the cycle will be slowed down considerably. This phenomena is known as "RESISTANCE TO FLOW BY RE-EXPANSION."

To sum the subject up, today's modern compressors vary between 79 and 86% in Volumetric Efficiency with compression ratios of 4 to 5 to 1 at standard medium temperatures (air conditioning).

Thus, all the foregoing must be borne in mind during any investigation of the compressor in evaluating the efficiency and operation of the system as a whole.

Primary observance of the compressor in operation is delegated to the "KEYS OF PERFORMANCE." These are:

The relationship of:

1. Suction Temperature
2. Discharge Temperature
3. Liquid Temperature just ahead of the Expansion Valve of the evaporator
4. Superheat or drop across the evaporator as measured by the thermal bulb
5. Crankcase Oil Pressure

After possible malfunction of the compressor-in-cycle has been corrected as far as is possible, and general malfunction exists, next step is to proceed to the condensing cycle and investigate if the cycle and equipment is further contributing to the overall difficulty.

(To Be Continued)

3 Appointed by Mueller Climatrol

MILWAUKEE—H. P. Mueller, Jr., executive vice president of Mueller Climatrol, a division of Worthington Corp., has announced the appointments of Richard L. Signorelli as assistant to the vice president-manufacturing and William G. Crooker as chief engineer-cooling.

At the same time, R. B. Schmidt, Mueller sales manager, announced the appointment of Earl H. Schreiber as sales representative for Mueller Climatrol heating and air conditioning equipment in the Kansas-western Missouri territory.

Signorelli joined Mueller Climatrol as its chief engineer-cooling in November, 1954. Crooker has held several sales engineering and engineering positions since joining Mueller Climatrol in 1950. Most recently, he was chief engineer of Mueller Climatrol's western facilities at Alhambra, Calif.

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DETROIT

Industry Shipments of Unitary Air Conditioners by Market by Product 1953-1957*

		—AIR CONDITIONERS—		YEAR-ROUND		—HEAT PUMPS—		SPLIT SYSTEMS
	Total	Self-Contained	Remote Condenser	Refrigeration Chassis	Self-Contained and Remote Condenser Type	Self-Contained	Other Than Self-Contained	Air Conditioning Condensing Units Only
1953								
Total	126,813	92,602	....	20,363	12,862	——	986 ——	....
Residential	41,992	12,964	....	——28,474——		——	554 ——	....
Commercial	84,821	79,638	....	—— 4,751——		——	432 ——	....
1954								
Total	160,909	106,888	....	18,189	15,932	——1,900——		18,000
Residential	80,001	29,809	....	16,934	14,514	——1,068——		17,676
Commercial	80,908	77,079	....	1,255	1,418	—— 832——		324
1955								
Total	196,861	117,695	....	19,664	18,070	——3,551——		37,881
Residential	111,158	37,765	....	19,389	14,745	——2,060——		37,199
Commercial	85,703	79,930	....	275	3,325	——1,491——		682
1956								
Total	254,403	130,294	14,821	10,241	13,541	4,060	686	80,760
Residential	147,224	47,296	1,956	10,169	10,833	2,631	444	73,895
Commercial	107,179	82,998	12,865	72	2,708	1,429	242	6,865
1957								
Total	214,672	103,037	7,032	4,720	7,445	7,482	1,762	83,194
Residential	124,808	39,669	752	4,659	5,480	4,841	772	68,635
Commercial	89,864	63,368	6,280	61	1,965	2,641	990	14,559

*Source: Air-Conditioning & Refrigeration Institute and Bureau of Census.

Mfrs., Dealers Express Confidence

Commercial Refrigeration Industry Optimistic

DETROIT — An optimistic spirit prevails among all the factors that affect the outlook for sales of commercial refrigeration equipment for food retailing and food serving establishments.

Manufacturers who produce commercial refrigerators, and the dealers who sell and install these products, have expressed confidence that sales of such products in 1959 will increase 5 to 10% over 1958.

As reported in the Dec. 22 issue of the NEWS, year-end meetings of the Commercial Refrigerator Manufacturers Association, and the National Commercial Refrigerator Sales Association, revealed evidence of a strong pick-up of sales in the third and fourth quarters.

For the manufacturers, after a first half that was running even or a little behind a so-so 1957 for most categories, the increase in the last half was such that an over-all increase in shipments of at least 5% was expected for the year. Shipments in October were 26% over the same month last year.

The NCRSA said that total dollar sales by members submitting figures for the third quarter showed an average increase of nearly 14% over the same period in 1957.

If the increase in dollar sales were up as much as 10% next year, the actual total unit sales of commercial refrigerators might push towards the 175,000 mark in 1959. However, one factor to be taken into consideration is that the average size of the unit sale in many categories is growing larger, so that a larger dollar volume may not bring about a corresponding increase in unit sales.

But for suppliers of components for commercial refrigerators the increase in average size of some of the equipment is significant. Average size of frozen food display cases is said to be pushing well past the 10-ft. length, and average cubic foot capacity of reach-in refrigerators has expanded considerably.

Those who buy and use commercial refrigerators reflect the same optimistic tone. An increase in retail food chain store expenditures for plant improvement to a record $880 in 1959 was predicted by Wallace N. Flint, National Association of Food Chains vice president, following a survey sponsored by the U. S. Chamber of Commerce.

Should predicted plans for new distribution centers and warehouses materialize, the executive stated, the food chain field might spend well over $1 billions on facilities in 1959.

The survey indicated that possibly more emphasis will be placed upon remodeling and renovation of new equipment in 1959, than on new construction. There was a feeling expressed that a "peak" may have been reached in the size of the individual supermarket.

An overwhelming majority of the nation's independent or "community" food retailers expressed confidence that business in 1959 will improve over 1958, and that more new stores of this type will be opened during the year, according to a survey report of the National Association of Retail Grocers of the U. S (NARGUS).

Projected survey figures indicate the opening of 15,318 new stores by NARGUS members in 1959, an increase of 17% in new store buildings over 1958, which was a top year for building despite the recession.

Of those who responded to a query on the general outlook for food retailing, 72% expect business to be somewhat improved, and 13% look forward to a much better year.

Wampler Sees Cooling Industry Growing Faster Than Rest of Economy

SYRACUSE, N. Y.—The outlook for continuing growth of the air conditioning industry is bright and it should move ahead more swiftly than the economy as a whole, according to Cloud Wampler, chairman and chief executive of Carrier Corp.

Noting there are many signs of general economic recovery, Wampler cited an increase in the rate of home building and maintenance of large scale construction at a high level.

He also pointed out that there is still a relatively low degree of saturation in important air conditioning markets, especially existing residences, factories, and institutional buildings.

"In spite of the many signs pointing toward a resumption of industry growth in 1959, it is improbable that such will be as rapid in the near-term future as during the decade after World War II," Wampler said.

"Throughout most of that period many buyers took advantage of the plentiful supply of money and credit at low rates to build or modernize homes and to purchase durable goods. Now money is scarcer and dearer.

"In addition, construction costs have risen substantially. Then there is the attraction of vacation trips, motor boats, and swimming pools and these offer competition against the purchase of air conditioning, purely for summer comfort.

"This situation challenges the resourcefulness of marketing executives. With consumer income rising and a better business climate, we are convinced that there is an opportunity to profit from increased marketing effectiveness.

Bohn Advances Top Executives

DETROIT—Directors of Bohn Aluminum & Brass Corp. announced advancements of company officers.

Terry W. Kuhn

R. C. Aylward

H. B. Thomas

Simon D. Den Uyl, formerly president, was elected chairman of the board. Terry W. Kuhn, formerly executive vice president, was elected president.

Richard C. Aylward, general sales manager, was elected vice president-sales. H. Blake Thomas, general manager of the Betz Div., was elected vice president.

At the same time the directors announced the election of a new director of the company. He is Guy H. Pitts, vice president-manufacturing.

Den Uyl becomes chairman after serving 39 years with Bohn and its predecessor company, The Charles B. Bohn Foundry Co. He has been president since 1949.

Kuhn has been with Bohn since 1928. For the past four years he has been executive vice president and prior to that he was vice president of sales for six years. He has served as a director of the company since 1950.

Aylward has served the company in a number of sales capacities and for the past three years has been general sales manager.

Thomas will continue his responsibilities with Bohn's Betz Div. at Danville, Ill.

Marsh Purchase--

(Concluded from Page 1, Col. 3)

board, and Barrett Scudder, president, have been made.

W. C. Norman, president of Colorado Oil & Gas, becomes chairman of the board. A. D. Rose, former executive vice president and general manager of Marsh, was elected president.

Other directors are J. A. Thommes, vise president in charge of plant operations; Charles R. Kaufman, Chicago counsel for Marsh; J. S. Bowman, executive vice president of Colorado Oil & Gas; and C. W. McDermott, secretary of Colorado Oil & Gas who assumes the same position with Marsh. J. W. Smith will continue as vice president and treasurer.

New executive officers are R. E. Barnett, vice president for sales, and Bernhard Willach, vice president for engineering. Both are long time employes of Marsh.

Jas. P. Marsh Corp. was founded in 1865 and is today one of the three largest manufacturers of indicating pressure gauges in the United States with branch factories in Houston, Texas and Edmonton, Can., it was stated.

Marsh also manufactures thermometers, heating specialties, refrigeration controls and valves.

Sutton Statement--

(Concluded from Page 1, Col. 2)

including inventory and accounts receivable, to First National Bank of Chicago, Fourth National Bank of Wichita, and Associates Discount Corp., South Bend, Ind. Transfer was a preference of these creditors over others, the petition charges.

Petitioning creditors are Media Communications, Inc., Los Angeles; Cadillac Associates, Inc., Chicago; Stanley A. Howell, Dallas; Harold B. Avery, Charlotte, N. C.; and Harvey B. Wilgus, Fairfield, Conn. They requested the court to declare Sutton bankrupt.

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WATER CONDITIONING COMPOUNDS AND EQUIPMENT

ARI Views 1959 and Early 'Sixties'--

(Concluded from Page 1, Col. 3)

tivity, and defense, Petrone said.

"While it is too early to report definitive figures on sales and installations of air conditioning and refrigeration equipment for 1958, all indications point to an increase in sales of central residential air conditioning as well as large commercial and industrial installations, and in a number of product lines in the commercial refrigeration field," he stated, "declines will be registered in sales of room air conditioners and some of the products used in commercial refrigeration."

Figures for the first three quarters of the year indicate that the almost 215,000 unitary air conditioners (the type used in central residential installations as well as small commercial establishments) shipped in 1957 will be topped by manufacturers' shipments this year; manufacturers of the large "systems" used in multi-story buildings such as hotels and apartment houses, as well as department stores and industrial plants, expect that 1958 will likewise show a gain over the previous year.

It was pointed out by the industry spokesman that the anticipated increase in commercial and industrial air conditioning is attributable to the fact that the purchase of climate-control equipment for these types of establishments is not necessarily tied to "comfort," and therefore not subject to the impulse buying which causes peaks in the residential market during prolonged periods of hot weather—particularly in the market for room units.

Air conditioning in apartment buildings, hotels, most commercial establishments, and many industrial plants is, instead, a dollars-and-cents investment in improved rentability, greater production, improvement of product, curtailment of employe absenteeism, or a combination of several of these.

Some Plants Would Not Be Able To Operate Without Conditioning

Some plants would not be able to operate at all without control of temperature and humidity—in such fields as the production of precision instruments, pharmaceuticals and biologicals, and precision printing, Petrone—who is president of Typhoon Air Conditioning Co. as well as head of the ARI, explained, adding that tests have shown the total output of products in other fields, where controlled climate is not necessarily essential to quality or to the manufacturing process, has increased when air conditioning has been installed—either because the workers are more comfortable or there is less absenteeism, or both.

Big Systems Showed Biggest Gain

As a result, the big systems showed a bigger gain in 1957 than any other segment of the industry, and probably will run ahead of the other segments again in 1958. At the same time, the industry feels that the installation of these large systems has a great potential.

An index of the magnitude of this field is to be found in the fact that the installed value of systems (generally classified as having 25 tons or more cooling capacity) amounted to $598,900,000 in 1957, a figure to which it grew from a 1950 installed value of $241,770,000, it was pointed out by Geo. S. Jones, Jr., managing director of ARI. The industry estimates that about half the volume goes into multi-room buildings, such as hotels, offices, and apartments, and that the other half is about equally divided between "other commercial" and industrial installations.

Residential Outlook

In the residential air conditioner field, a number of factors point to a return to the growth curve which was arrested in some degree by 1957 and 1958 sales, it was pointed out. One of these is a policy statement made during 1958 by the Federal Housing Administration, in which inclusion of air conditioning in FHA-guaranteed mortgages was urged on the ground that non-air conditioned homes would be obsolete in many sections in a decade.

Certification Program

Another was the inauguration, late in the year, of a certification program for unitary air conditioners, Petrone stated. Cooperatively developed by the Air-Conditioning & Refrigeration Institute and the National Warm Air Heating & Air Conditioning Association, the program calls for the production, testing, and rating of these units in accordance with ARI Standard 210-58, and the use by participating manufacturers of a "seal of certification" to guarantee conformance of their product to the ARI standard.

The industry will give publicity, throughout the trade as well as among architects, builders, contractors, and the public, to the program and its seal, use of which will be restricted to complying equipment through a contract between participating manufacturers and the ARI, with provision for withdrawal of the seal from non-complying producers.

It is felt, Petrone said, that promotion of this program and the seal of quality, along with planned industry promotion of the benefits of air conditioning, will result in an upswing in next year's sales. The benefits of controlled climate, he added, are being more widely recognized cumulatively, as more individuals and company officials observe what it can do in the home, office, and plant.

Industry's Role In National Defense

Aside from the well-known and widely used applications of the refrigeration cycle, including air conditioning as understood by the layman, the industry has emerged in the past few years as a contributor to national defense and those producers which provide the "hardware" and other military products which are the sinews of national military might.

Mechanical refrigeration is essential to the smooth operation of missile control systems, of radar, and of other electronic devices of great value to the military as well as civilian industry; liquid oxygen, one of the fuels used for propulsion of rockets such as those which propelled the first U. S. satellites into space, must be produced and kept at temperatures hundreds of degrees below zero; lenses and other optical equipment used by the armed forces are produced, and some of them used, under conditions of controlled temperature and humidity—the list is almost endless.

Servicing Automobile Air Conditioners

(Vol. 3)

BY C. DALE MERICLE

MOBILETTE

Mobil-Aire Mfg. Co.
P.O. Box 122
Denison, Texas

The 1958 "Mobilette' under-dash air conditioner is basically the same as the 1957 model, but there are a few differences worth noting.

Instead of the pushbutton blower controls and de-icing thermostat employed on the 1957 unit, the 1958 Mobilette uses a rheostat to control fan speed and an adjustable Ranco thermostat to cycle the magnetic clutch driving the compressor to achieve temperature control.

Location of the controls on the evaporator case has been changed, too, in the 1958 model.

A single fan is offered as standard equipment on the 1958 model, although two fans are available as an option. Use of two fans was standard on the 1957 unit.

Most of the 1958 Mobilette units employ the Tecumseh HH compressor and the Warner magnetic clutch, as in 1957.

Refrigerant charge is approximately 2 lbs. of Refrigerant-12.

Most of the service instructions given for the 1957 model will also apply to the 1958 model, except for the changes noted in the blower and clutch controls.

FRIGIKAR

Frigikar Corp.
1711 Cochran
Dallas, Texas

Aside from some styling changes, the 1958 model air conditioners produced by Frigikar are identical with the 1957 models.

This applies to the "Frigiking" under-dash and trunk units, "Frigikar" trunk units, and the "Frigikab" unit for trucks.

All the 1958 models continue with the use of a magnetic clutch for driving the compressor, the clutch being controlled by an adjustable thermostat to regulate temperature. Multiple-speed blower controls are used.

Refrigerant-12 is standard, and the charges for 1958 models remain the same as in 1957: 2¼ lbs. maximum in the under-dash Frigiking and Frigikab units; 3 lbs. in the Frigiking trunk model, and 4½ lbs. in the Frigikar trunk unit.

Service instructions for the 1958 models are the same as those for the 1957 line.

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In Canada: General Equipment Corp., Ltd., Toronto, Ont.

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"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
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POSITIONS WANTED

SALES ENGINEER — Michigan — Twenty years' experience outside metropolitan Detroit area in industrial, commercial, and domestic refrigeration and air conditioning; sales, sales managing, application engineering, system design, installation and service supervision with a utility and large wholesaler. Active member ASRE and RSES organizations. Desire connection with reputable manufacturer or wholesaler. Will consider starting an exclusive product distribution agency. BOX A6157, Air Conditioning, Heating & Refrigeration News.

HEAT PUMP, air-conditioning and commercial refrigeration field service engineer. Thirty years' experience—installation, hermetic reoperation, low temperature (-110°F.), service engineer instructor for six years, desires position as field engineer for manufacturer in Ohio, Indiana, Kentucky or West Virginia. Assoc. member ASRE and Certificate member RSES. BOX A6158, Air Conditioning, Heating & Refrigeration News.

DESIRE CHANGE with company doing around four hundred thousand financed & equipped for seven in next two years & supplying good revenue to producer. Applicant engineers, drafts, designs, estimates. Field supervises, contacts public and engineers for all types heating, air conditioning & refrigeration systems. BOX A6160, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

WEST TEXAS Hussmann distributor has opening for commercial refrigeration and air conditioning salesman. Territory includes one metropolitan city and a number of outlying towns. Drawing account against percentage of gross profit of salesman's production. Must be able to furnish at least five references. Please write: MALCOLM HINKLE, INC., P. O. Box 2138, Pampa, Texas.

AGENT WANTED — Major manufacturer of a complete line of blowers for air conditioning and heating requires representative now selling original equipment manufacturers. Tell us your present lines and territory traveled. Write Thompson Morrison, President, MORRISON PRODUCTS, INC., 16816 Waterloo Road, Cleveland, Ohio.

WANTED: PERSON to handle internal sales and administrative functions of a Western Pennsylvania wholesale air conditioning and refrigeration supplier. Equipment application knowledge essential. Send complete resume and salary range desired. All replies confidential. Write BOX A6156, Air Conditioning, Heating & Refrigeration News.

SALES ENGINEER:—Challenging opportunity with well established aggressive growth company, for a recent college graduate with 2-3 years' technical equipment sales experience. Must be willing to relocate. Send resume with complete information including salary history and requirements. BOX A6159, Air Conditioning, Heating & Refrigeration News.

EQUIPMENT WANTED

AIR CONDITIONING equipment. Surplus stocks of 50 to 200 units in sizes 1, 2, 3, 4, 5, h.p. air or water cooled condensers, 220 volt single phase. Write with descriptions: ART JANECK REFRIGERATION CO., 1723 Beld St., Madison 5, Wisconsin.

WANTED: FRICK two cylinder 11 x 10 ammonia compressor. Must be in top condition. Prefer with synchronous motor and control. MACK MACHINE CO. OF PENNA., 3151 Emerald Street, Philadelphia 34, Penna. Phone Nebraska 4-1300.

OBSOLETE NEW and reconditionable parts for Mills compressors, especially shafts and valve plates. Give details as to model numbers, condition, quantity, etc. Clean house now and get cash for Mills and other make parts and compressors. UNITED REFRIGERATION CORPORATION, 514 W. 12th St., Los Angeles 15, California.

USED AND obsolete refrigeration compressors, condensing units, valve plates and parts for York, G. E., Par, Mills, Brunner, Carrier, Universal, and others. Furnish full description as to model number, horsepower, etc. UNITED REFRIGERATION CORPORATION, 514 W. 12th Street, Los Angeles 15, California.

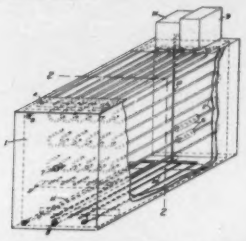
EQUIPMENT FOR SALE

MODEL HH 2 h.p. automobile air conditioning compressors tapered shaft, vertical mount, complete with flywheel $33.95. Send for free circulars and catalogs on money saving refrigeration & air conditioning parts and supplies. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

PATENTS

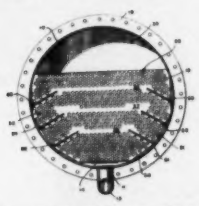
Week of Oct. 7

2,854,827. APPARATUS FOR COOLING SYSTEMS UTILIZING COOLED CIRCULATED WATER. Thomas E. Lockerbie, Edmeston, De Forest G. Perryman, Albany, and John Frederic Dunckel, Herkimer, N. Y.; said Perryman and said Dunckel assignors to said Lockerbie.



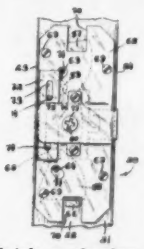
In a cooling system, an insulated tank having a lower inlet opening and upper outlet opening respectively through which circulating water enters the tank at a higher temperature than which it leaves the tank, a cooling coil uniformly disposed in said tank comprising a plurality of parallel loops disposed in parallel vertical planes, means connected to said coil for circulating a coolant therethrough for forming ice banks uniformly on said loops. . . .

2,854,828. FREE FLOW EVAPORATOR. Milton W. Garland, Waynesboro, Pa., assignor to Frick Co., Waynesboro, Pa.



2. An evaporator comprising a shell for substantially horizontal use having refrigerant inlet means at its lower portion and refrigerant outlet means at its upper portion, tube means extending through the shell, baffle means extending longitudinally of the shell and having a side attached to a side of the shell and being inclined upwardly in order to provide with the adjacent portion of the shell a recess for holding liquid refrigerant at the height of the baffle means. . . .

2,854,838. PANIC LATCH AND LOCK MECHANISM. John R. Foster, Indianapolis, Ind., assignor to Vonnegut Hardware Co., Indianapolis, Ind., a corporation of Indiana. Continuation of application Serial No. 487,746, Feb. 14, 1955. This application June 23, 1958, Serial No. 744,632. 24 Claims. (Cl. 70—92.)

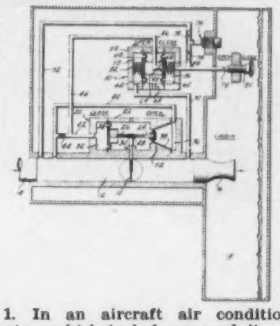


19. A latch mechanism comprising a casing having an open face, said casing being adapted for attachment to a door with its open face contiguous to the door, a latch bolt mounted in said casing and projectible therefrom through an opening in a side wall of said casing, a latch bolt retractor received in said casing and guided for transverse movement therein, said bolt retractor having a laterally-extending cam-following member thereon and an operative connection with said bolt. . . .

2,854,915. METHOD AND APPARATUS FOR AIR CONDITIONING. Clifford H. Carr, Kansas City, Mo. Application Sept. 17, 1953, Serial No. 380,822. 4 Claims. (Cl. 98—38.)

1. A system for conditioning air in an enclosure comprising heat transfer means for altering the temperature and humidity of outside air, power and duct means for drawing the outside air through said heat transfer means and delivering the conditioned outside air to the vicinity of said enclosure. . . .

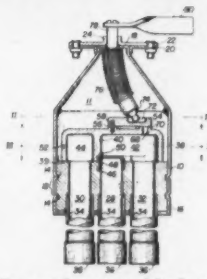
2,854,913. FLOW CONTROL MEANS FOR AN AIRCRAFT AIR CONDITIONING SYSTEM. Charles B. Brahm, Rockville, Conn., assignor to United Aircraft Corp., East Hartford, Conn., a corporation of Delaware. Application Dec. 13, 1956, Serial No. 628,087. 7 Claims. (Cl. 98—1.5.)



1. In an aircraft air conditioning system which includes a conduit carrying air under pressure and a nozzle for discharging air into a compartment, the combination comprising a throttle valve disposed between the conduit and the nozzle and adjustable between open and closed positions, an actuator connected with the throttle valve having two chambers one of which communicates with the conduit for air supply to urge the throttle valve toward closed position and the other of which is connectible to a source of air under pressure for air supply to urge the throttle valve toward open position. . . .

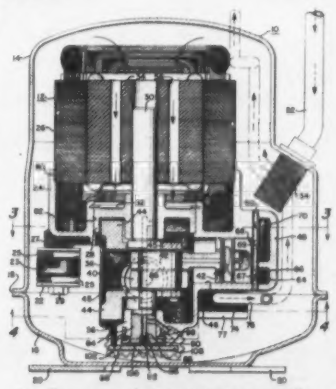
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

2,855,000. REVERSE FLOW VALVE. Vincent K. Van Allen, Bridgeport, and David L. Morgan, Shelton, Conn., assignors to Robertshaw-Fulton Controls Co., Greensburg, Pa., a corporation of Delaware. Application Feb. 16, 1955, Serial No. 488,633. 3 Claims. (Cl. 137—625.43.)



2. In a valve assembly having a casing provided with a plurality of ports, a valve disc mounted for axial rotation in said casing and having chambers for selectively connecting pairs of said ports, said valve disc having apertures establishing communication between said chambers for by-passing fluid therebetween. . . .

2,855,139. REFRIGERATING APPARATUS. John Weibel, Jr., Dayton, Ohio, assignor to General Motors Corp., Detroit.



1. In a motor-compressor unit, a main frame, a vertically disposed shaft journaled in said frame, a motor drivingly connected to the upper part of said shaft, compressor means drivingly connected to an intermediate portion of said shaft, and an oil pump drivingly connected to the lower portion of said shaft, an end thrust bearing element carried by said frame adjacent the lower end of said shaft....

PREVIEW

New Products, Demonstrations To Be Offered at Philadelphia Exposition

The Dec. 29, 1958 issue of the NEWS was devoted to advance coverage of the 14th International Heating & Air-Conditioning Exposition to be held in Philadelphia Jan. 26-29. One of the features of that issue was presentation of stories of what various exhibitors are going to show in their booths. In this issue we publish a group of these "Previews" which arrived too late for inclusion in the "Pre-Show Issue."

Johns-Manville

"Transite" pipe and plastic and "Fibrocel" pipe insulations will be featured by Johns-Manville.

New displays will graphically illustrate the versatility of "Aerotube" foamed plastic pipe insulation, "Cerafelt" refractory-fiber felt insulation, "Spintex" and "Fiber Glass" insulation for air conditioning ducts, "Fibrocel" molded silicate insulation, Transite gas vent, Transite air duct, and Transite vent pipe.

A separate section of the exhibit will show the use and applications of "Sanacoustic" system of heating, cooling, and sound control.

Flexibility of the new J-M foamed plastic insulation Aerotube, will be shown by comparing it with an enlarged photo of a sinuous curvaceous girl in a bikini bathing suit. A cutaway section of a furnace combustion chamber will demonstrate the advantages of Cerafelt.

Spintext insulation for air conditioning ducts will be shown applied to a portion of a duct and by actual application blow-up photos. A mechanic will demonstrate the Graham spot welding technique used in applying J-M duct insulations.

Curtis Mfg. Co.

A complete new line of package liquid chillers will grace the Curtis Mfg. Co. Refrigeration Div. booth. Sizes 7½ to 20 hp. will have a semi-hermetic compressor, while larger sizes will have completely new compressor units.

Booth will also contain a redesigned line of packaged air conditioners of 20 through 50 hp. with new compressor units. An 8-ton packaged air conditioner will have a plexiglas front to show interior features. An air-cooled condensing unit will also be displayed.

Universal Diffuser

A number of diffusers in active operation will mark the Universal Diffuser Corp. booth. They will be connected to gauges showing the volume, jet velocity, and static pressure. By means of Johnson air controls they can be operated from the panel by engineers.

Exhibit will include Universal Diffuser's complete line of registers and grilles. An 18-ft. long demonstration unit will show how the "Line-Air" long slot diffuser delivers air at 90° to the face without using additional turning vanes.

Marlo Coil

The smallest in a newly developed line of 38 sizes of central station air conditioning units will be featured at the Marlo Coil Co. booth in a sectional display showing all components and accessories for every air conditioning process.

The "Seasonaire" remote-type room air conditioning units will also be displayed with one complete cabinet unit and a full size operating model with working parts exposed.

Marlo's new "Evntemp" steam coil developed to provide the performance necessary for modern sensitive control systems will also be displayed.

Niagara Blower

New models of Niagara Blower Co.'s "Controlled Humidity Method" dehumidifying units will be introduced at the show. With this equipment, moisture is removed directly from atmospheric air by means of a liquid absorbent sprayed into the air stream.

Torrington

A new design of mixed flow air impeller to operate in the performance range between axial fans and centrifugal blowers wil be introduced by Torrington Mfg. Co.

Called the H series blower wheel, it is claimed to have the highest peak efficiency and lowest noise level of any type of impeller in this particular range of performance.

Torrington will also display its standard line of "Airotor" blower wheels and fan blades and "Vari-Basic" blower units. New "Radiax" blower unit will also be exhibited.

Taco Heaters

New line of LP pumps, both close-coupled and base-mounted types, will highlight Taco Heaters, Inc. exhibit. The company will also show its standard No. 110 circulator, "Perfecta" pump, heat exchanger, air scoop, centrifugal pump, and other hot water specialties.

The LP series are single-stage centrifugal pumps that will be available in 41 sizes with performance range of 10 to 3,000 g.p.m. with heads from 10 to 250 ft.

C. A. Olsen

On a patio featuring the theme "Air Conditioning Brings the Best of Outdoor Living Indoors," C. A. Olsen Mfg. Co. will display for the first time "Luxaire" plenum-type circular evaporator coils, blower-coil air handling units, factory assembled, and wired 175,000 and 200,000 B.t.u., input gas-fired winter air conditioning units and 84,000 and 95,000 B.t.u. output oil-fired basement-type winter air conditioning units.

A combination year-round air conditioning unit will operate on cooling in an enclosed booth.

Olsen will also display an example of every type of Luxaire heating and air conditioning unit manufactured.

Paragon Electric

A fan timer miniaturized to fit in a regular outlet box and a portable time switch for control of window air conditioners are new products Paragon Electric Corp. will exhibit in its booth.

With fan timer model FF-51, the company says, an electric driven timing device can, for the first time, be installed in any handy box, just like a wall switch.

The air conditioner control is equipped with a three prong cord and plug but is also available with a two-prong cord and plug.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

GOOD LINES WANTED

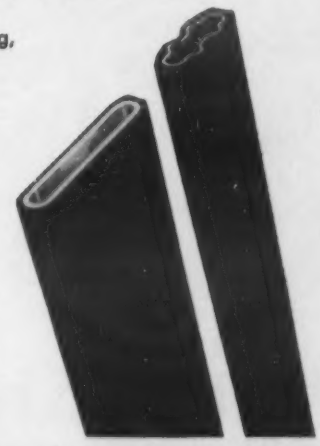
By experienced, aggressive, Sales Representatives, with Associate Offices in St. Louis, Indianapolis and Chicago, which can provide complete or partial coverage from Pittsburgh to Denver, seek new or established lines of air conditioning, refrigeration, heating, ventilating products or components. Presently serving wholesalers, distributors, contractors, architects, engineers, chain stores and manufacturers. Our clients are young and ambitious, well known and highly regarded. Lines must have present volume or good potential. Present suppliers, leaders in their field, know of this ad. Write in confidence to

T. Q. Luhmann
HARTOGENSIS ADVERTISING COMPANY
10406 Manchester Road, St. Louis 22, Mo.

EXTRUDE RUBBER OVER METAL?

YES! GEAUGA DOES IT!

Bus bars, flexible tubing, braided cable and hose, light structural members up to 4½" wide, 16 feet long. These are some of the parts over which Geauga applies an extruded cover. Material is applied as a continuous extrusion up to ⅛" thick.



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GEAUGA INDUSTRIES CO.
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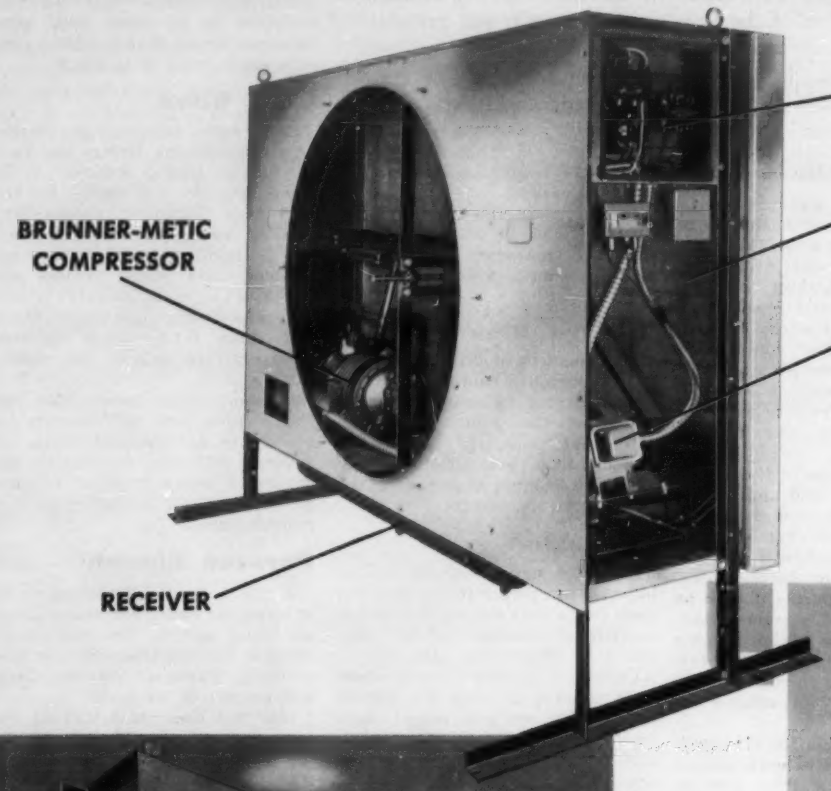
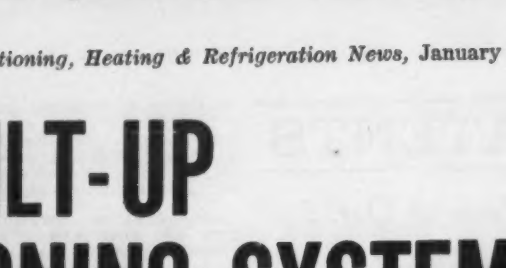
NEW CONCEPT IN BUILT-UP AIR CONDITIONING SYSTEMS



DUNHAM-BUSH 'LRCU' UNITS

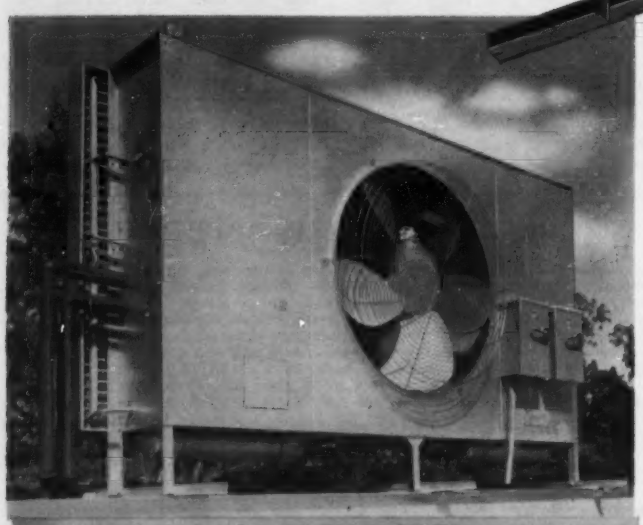
By incorporating the compressor and receiver in the same casing as the remote air cooled condenser there are substantial savings in space and installation costs on built-up air conditioning systems.



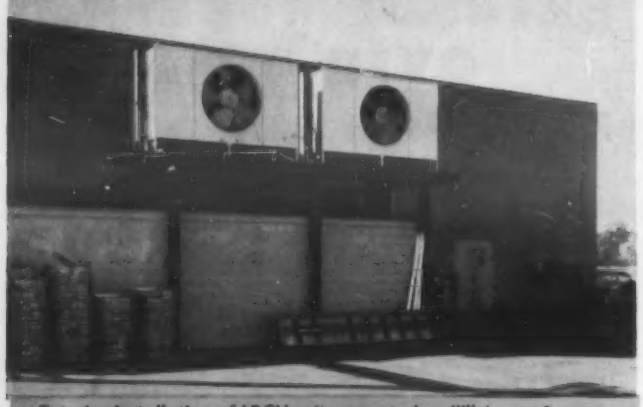
Eliminate expensive installation costs . . . plumbing . . . wiring . . . with a Dunham-Bush 'LRCU' Large Remote Condensing Unit. Here's a complete package consisting of a remote air cooled condenser, semi-hermetic compressor, magnetic starter, receiver, controls and refrigeration accessories all piped and wired.

Install on the roof (or other convenient location) and run the necessary refrigerant lines to the lowside equipment. Make electrical connections and the system is ready for operation.

Available in 5 models from 10 to 30 tons. Two-step starting makes units readily adaptable for capacity control. Two compressors furnished on 20, 25, and 30 HP units.



Typical rooftop installation of LRCU unit.



Exterior installation of LRCU units, mounted on "I" beam frame.

Dunham-Bush, Inc.

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